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June, 1976

THE
JOURNAL
OF
Arkansas MEDICAL
SOCIETY

Vol. 73 No. 1

FORT SMITH, ARKANSAS

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Both often



- Predominant psychoneurotic anxiety

- Associated depressive symptoms

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Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor

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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

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orders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anti-convulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful

respond to one

According to her major symptoms, she is a psychoneurotic patient with severe anxiety. But according to the description she gives of her feelings, part of the problem may sound like depression. This is because her problem, although primarily one of excessive anxiety, is often accompanied by depressive symptomatology. Valium (diazepam) can provide relief for both—as the excessive anxiety is relieved, the depressive symptoms associated with it are also often relieved.

There are other advantages in using Valium for the management of psychoneurotic anxiety with secondary depressive symptoms: the psychotherapeutic effect of Valium is pronounced and rapid. This means that improvement is usually apparent

in the patient within a few days rather than in a week or two, although it may take longer in some patients. In addition, Valium (diazepam) is generally well tolerated; as with most CNS-acting agents, caution patients against hazardous occupations requiring complete mental alertness.

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Valium[®] (diazepam) [Ⓢ]
2-mg, 5-mg, 10-mg scored tablets

in psychoneurotic
anxiety states
with associated
depressive symptoms

surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of child-bearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies.

Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle

spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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A. S. KOENIG, JR.

Fort Smith

President

Arkansas Medical Society

1976-1977

PROCEEDINGS

100th Annual Session

ARKANSAS MEDICAL SOCIETY

Arlington Hotel, Hot Springs

April 25-28, 1976

**First Meeting
HOUSE OF DELEGATES**

The first meeting of the House of Delegates was called to order at 1:07 P.M. by Speaker Chudy. Invocation was by W. Payton Kolb.

The Executive Vice President, Mr. Schaefer, called the roll of delegates. The following delegates, officers, and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead; ASHLEY, Donald L. Toon; BAXTER, John Guenther; BOONE, Joe Bill Wilson; BRADLEY, George F. Wynne; CHICOT, Charles D. Blackmon; CLARK, R. Jerry Mann; COLUMBIA, Joe Rushton; CRAIGHEAD-POINSETT, Gus A. Craig, James M. Robinette, James W. Sanders, Frank James; CRAWFORD, Millard C. Edds; CRITTENDEN, Milton Deneke; DALLAS, John H. Delamore; DREW, J. P. Price; FAULKNER, J. J. Magic; GARLAND, Robert L. Hill, E. K. Clardy, Robert L. Lewis; GRANT, Curtis B. Clark; GREENE-CLAY, J. Larry Lawson, Richard Martin; HEMPSTEAD, George Wright; HOT SPRING, Robert H. White; INDEPENDENCE, J. E. Lytle; JEFFERSON, George V. Roberson; JOHNSON, Boyce W. West; LEE, Dwight W. Gray; MILLER, Donald L. Duncan; MISSISSIPPI, M. J. Osborne; MONROE, N. C. David, Jr.; OUACHITA, Cal R. Sanders; POLK, David Fried; POPE, James Kolb; PULASKI, Edgar Easley, Raymond Biondo, Harold Purdy, J. B. Cross, James Weber, William Jones, Paul Coruell, Robert Dickins, Frank Westerfield,

James Deer, William G. Reese, Ellery C. Gay, George Mitchell, W. Ray Jouett, G. Thomas Jansen, Purcell Smith; SALINE, Helen Rountree; SEBASTIAN, Robert Hughes, Ken Lilly, A. C. Bradford, W. P. Phillips, Carl L. Williams; ST. FRANCIS, David L. Lockhart; UNION, James F. Clark, George Warren; VAN BUREN, John A. Hall; WASHINGTON, Spencer Albright, Joe Parker, John Vinzant; WHITE, James H. Golleher; WOODRUFF, B. E. Hendrixson; YELL, James Maupin; COUNCILORS, Eldon Fairley, John B. Kirkley, Paul Gray, John Bell, L. J. P. Bell, Fred C. Inman, Raymond Irwin, John P. Burge, J. B. Jameson, A. E. Andrews, C. Lynn Harris, Robert McCrary, Curtis B. Clark, W. Payton Kolb, William S. Orr, Jr., Henry V. Kirby, Morris Henry, C. C. Long, Kemal Kutait; PRESIDENT, T. E. Townsend; PRESIDENT-ELECT, A. S. Koenig, Jr.; FIRST VICE PRESIDENT, Asa A. Crow; SPEAKER, Amail Chudy; VICE SPEAKER, Charles F. Wilkins, Jr.; SECRETARY, Elvin Shuffield; TREASURER, Kenneth R. Duzan; PAST PRESIDENTS Joe Verser, C. R. Ellis, H. W. Thomas, Ross Fowler, Stauley Applegate, Robert Watson, and Ben Saltzman.

Purcell Smith, Chairman of the Credentials Committee, reported that fifty-five delegates had registered and that a quorum was present.

Upon motion of Henry, the House approved the minutes of the 99th Annual Session as published in the June 1975 issue of the Journal. By motion of Orr, minutes of the meeting of

100th Meeting Celebration



Decorations for the annual banquet at the Annual Session featured a birthday cake in celebration of the 100th meeting of the Arkansas Medical Society. Participating in the lighting of candles for the birthday cake were Past Presidents Jack Kennedy, Joe Norton, Joe Verser, Ross Fowler, H. W. Thomas, Stanley Applegate, C. R. Ellis, Robert Watson, Ben Saltzman, John Wood, and T. Duell Brown, along with Mrs. Louis K. Hundley, widow of a past president, 1975-76 President T. E. Townsend, and 1976-77 President A. S. Koenig, Jr. Joe Norton led the audience in singing Happy Birthday.



T. Duell Brown, Little Rock, 1957-58 president, and H. King Wade, Jr., 1962-63 president, light candles on the cake.

the House of Delegates held December 14, 1975, were approved by the House.

With Vice Speaker Wilkins presiding, the House welcomed special guests.

Mrs. Norman H. Gardner, President-elect of the American Medical Auxiliary, addressed the House as follows:

"Thank you for your very gracious welcome and for the opportunity to share in this, your centennial. The Arkansas Medical Society should be very proud of its Auxiliary. We on the national level are proud of them and I am happy to bring greetings to you today from the AMA Auxiliary. You have an Auxiliary composed of bright, dedicated women who are eager to be of service to you. The Arkansas Auxiliary has maintained a good membership record over the years but it is only fair to point out to you that about 25% of your wives are not members of the Auxiliary. Have you encouraged them to join this group of women who are busy providing much health-related community service which is good for people? Direct these Auxiliary members; they can be of great use to you in carrying out the programs that you would like to see accomplished in your own areas. If you communicate with them and tell them what you want, you will be surprised at how much they can accomplish. Your Auxiliary worked hard for the Arkansas Medical Society. Nationally, we raised a lot of money for AMA-ERF. Last year it was over one million, three hundred thirty thousand dollars. Here in Arkansas you have done mighty well in that area; I think you will be surprised and pleased with your report. This money is good for students who are trying to manage medical education and, also, good for the medical schools who need these unrestricted funds to help carry on their work. The Auxiliary is good for doctors, too. We are mighty proud of you and all that you have accomplished and we want very much for the public to know the true story about you and me. In this day, it is quite necessary that we counteract much of the unfavorable press that, so far, is so prevalent as far as the medical profession is concerned. We want to combat that misinformation and let people know just how great you are. Arkansas, I think, might be interested to know that twenty-five medical associations throughout

the country now invite the Auxiliary president to sit on their Council. They do this for two reasons: (1) the women can understand the reasons behind the policy that the Council sets; (2) the women who are there can offer help in areas they know the Auxiliary can help you in. We find that where the Medical Society and the Auxiliary work close together, it helps to promote unity and, in this day and age, unity in the Medical Society, unity in the Auxiliary, and between the two groups is most important. I would like to leave you with one little thought; behind every successful doctor, there stands a surprised mother-in-law. Thank you."

Mrs. J. Gordon Dees, Jackson, Mississippi, President of the Woman's Auxiliary to the Southern Medical Association, was welcomed and addressed the House as follows:

"Thank you, doctors. Let me assure you I am happy to be here today to bring you greetings from the Southern Medical Auxiliary. I have just returned from a meeting with our convention chairman in New Orleans and I can assure you they are already hard at work on plans for a wonderful convention in New Orleans in November. I am sure that your own Dr. Jansen, who is president-elect of the Southern Medical Association, has convinced all of you men that you need to pay your \$30 dues and become members of Southern. I am sure all you gentlemen are now members of Southern, but, in case he forgot to tell you, let me admonish you to remind your spouse that upon payment of your dues and membership in Southern Medical Association, your spouse is automatically an Auxiliary member. We want her and we need her to join our big happy family in Southern Medical Auxiliary. I do extend to you my own personal invitation to be with us for our convention in New Orleans November 8-11."

Next, Vice Speaker Wilkins introduced the president of the Arkansas Auxiliary, Mrs. Curry Bradburn of Little Rock. Mrs. Bradburn spoke briefly as follows: *"We have been working hard this year. At a state level, we have made twelve student loans totaling \$6,800. Our AMA-ERF Committee has raised \$11,000. We have given several scholarships to Aldersgate Medical Camp. Our membership is 887 but we do want to ask you to invite your spouse to attend our House*

The Society Celebrates its 100th Meeting



1975-76 President T. E. Townsend lit the first candle on the birthday cake. Lighting other candles were Stanley Applegate (president, 1971-72) Ben N. Saltzman (president, 1974-75), and A. S. Koenig, Jr. (president, 1976-77).

The Society Celebrates its 100th Meeting



Mrs. Louis K. Hundley (widow of 1958-59 president) and Past Presidents John Wood (1973-74), Ross Fowler (1969-70), and Robert Watson (1972-73) participating in the cake lighting ceremony.

The Society Celebrates its 100th Meeting



Past Presidents Joe Verser (1963-64), C. R. Ellis (1964-65), Joe Norton (1967-68), and H. W. Thomas (1968-69) light candles on the birthday cake.

of Delegates and join us, we can do more together."

Mrs. Carl Wilson, president-elect of the Auxiliary, from Fort Smith, was introduced by Vice Speaker Wilkins and she spoke as follows:

"Ladies and gentlemen, I am honored to be presented to you as the incoming president of the Medical Auxiliary and humbled when I think that what I do this year will reflect upon your wives and, thus, upon you. I am a registered Medical Records Librarian so I know how devoted you are and how hard you work. As a wife of a doctor whose two brothers are doctors and whose son is a doctor, things become ever clearer and more personal. The Medical Auxiliary's number one project this year will be to help pass the Malpractice Amendment. We intend to do our best to bring this about. You can help us. Thank you for asking us to appear before you today."

Vice Speaker Wilkins introduced guests from the University of Arkansas College of Medicine. Warren Skaug, Steve Snow, and Randol Hooper were present as representatives of the Junior Class at the Medical School.

President-elect A. S. Koenig introduced the president-elect of the American Medical Association, Richard E. Palmer of Alexandria, Virginia, who addressed the House. Dr. Palmer reviewed the malpractice crisis across the country and legislative reforms in some states and the re-insurance company set-up by the AMA. He urged physicians to support the American Political Action Committee. He reviewed the financial problems and the American Medical Association and the reorganization underway. He mentioned other problems facing American medicine such as utilization review, the Talmadge bill introduced in Congress, the Health Planning and Development Act, the Federal Trade Commission, Health Manpower, and Health Maintenance organizations.

President T. E. Townsend introduced a special guest, Nym L. Barker, president of the Texas Medical Association and a graduate of the University of Arkansas School of Medicine.

President Townsend presented his "President's Address." The address appears elsewhere in this issue.

President Townsend introduced Mr. George Warner, Assistant Dean for Administration at

the University of Arkansas College of Medicine, and Mrs. David Barclay, AMA-ERF Chairman for the Arkansas Medical Auxiliary. Mr. Warner expressed Dean Bruce's regrets that he could not be present. President Townsend presented to Mr. Warner for the University of Arkansas College of Medicine a grant of \$20,512 from the American Medical Association Education and Research Foundation. Mr. Warner received the check on behalf of the school and thanked the Society for its support and help. President Townsend then expressed thanks to Mrs. Barclay and the Auxiliary for their great work in raising funds for AMA-ERF. Mrs. Barclay expressed thanks for the cooperation she had received and challenged Arkansans to meet the same goal this year.

Speaker Chudy called for reports of committees. Elvin Shuffield reported for his Committee on Medical Legislation, which is printed as a supplement to these minutes. Speaker Chudy expressed the thanks of the Society to Dr. Shuffield and Mr. Warren for their dedicated work in the field of legislation.

Speaker Chudy called for new business. Speaking for the Washington County Medical Society, Spencer Albright presented a resolution in support of Amendment 58 and spoke in favor of the resolution as follows:

"I speak for adoption by the entire House of Delegates of the Arkansas Medical Society of a resolution approved by the Washington County Medical Society. This resolution is before you and it is entitled 'A Resolution to Affirm Support for Amendment 58 to the Arkansas State Constitution.' Much of the work has been done, as mentioned by our leaders, and I feel that it is high time, and our Society feels it is high time, that the grass roots physician become involved and voice his and her support for this amendment and not just have it approved by our Administration and by our Council."

"I would like to state first of all in speaking on this that I have been practicing medicine in Arkansas for ten years and I, myself, have never had a threat of a lawsuit but I have seen this crisis developing and hitting my competent professional colleagues. I feel that as one of you, the physicians not in a position of leadership, I have a professional obligation to speak out for my colleagues."



Society Executive Committee for 1976-77. (Seated) W. Payton Kolb, Little Rock, President-elect (left) and A. S. Koenig, Jr., Fort Smith, President. (Standing) Elvin Shuffield, Little Rock, Secretary, and John P. Burge, Lake Village, Chairman of the Council.

'In support of this, I would like to say that although we do not have a medical malpractice crisis in Arkansas as great as other states do, we do have a crisis and it has been getting worse recently. You may not realize that in 1975, two hundred and forty-five malpractice claims were filed against physicians in Arkansas. This means approximately one in eight of us. National statistics indicate that malpractice claim rates are increasing at the rate of twelve percent per year, which compounded annually means that in 1980, there will be approximately one out of every four of us actually facing a lawsuit. Or, said in a different way, if you take the years 1975 through 1980 inclusively, approximately 100-110% of us physicians will sustain a medical malpractice claim during this six-year period. Said in another way, an average of one suit or more for each of us physicians during that time. So, the malpractice claims in Arkansas—contrary to what you are hearing from the lawyers—are getting very high. In the past three years in Washington County alone, we have had two suits—one for 1.5 million dollars and another for over 3 million dollars—filed. I have reviewed these and there is really no evidence of true malpractice on the part of the physician, only a dissatisfied patient.

'This is not a crisis of physicians and their malpractice companies. It includes the hospitals, as we have alluded to earlier, and directly affects every single health consumer in Arkansas and this is what we have to get across, as far as I am concerned, to our patients. Also, to bring it close to home, in 1976 the Arkansas Baptist Hospital System in Little Rock was told they would have to pay a premium of \$750,000 for merely one million dollars worth of coverage and this cost, of course, would go on to the patient. The National Administration of our sole remaining insurance underwriting company in Arkansas, the St. Paul Company, probably holds the key to when the actual health care delivery crisis may suddenly be precipitated in our state. This could be brought about by further changes in the terms of their policies which we have been hearing about, or by just deciding to leave our state, as they have done in 16 states over the last few years. This health care delivery crisis could have been precipitated one year ago because in the spring of 1975, St. Paul gave an ultimatum to our State Insurance Commissioner and to us physicians which in effect said 'you will accept our new controversial claims-made policy or we will leave Arkansas on July 1, 1975;' that was last year. So we physicians really didn't have much choice; we had to knuckle under and accept it. St. Paul did move out of the states which did not accept it. I don't know how much you know about these new claims-made policies but to me it is a very bad policy, for one major reason. We physicians have lost our right to defend ourselves in court. You may have noticed that your malpractice premiums are more this year; but don't forget, it is poorer coverage. Check it out carefully. My premiums have increased 25% even though we have poorer policies. Also, when these claims-made policies were introduced, we were told by the insurance company that we would have a free ride for about two or three years—their premiums to us would be lower, and then they would be adjusted annually depending on their losses. But I just noticed two days ago in our NORTHWEST ARKANSAS TIMES that the St. Paul Insurance Company has already asked for a 69% increase in our malpractice insurance premiums for next year. So I think this free ride in Arkansas is going to be a lot shorter than it was indicated.



W. Payton Kolb of Little Rock thanks the members of the House of Delegates after being elected to the position of President-elect of the Society.

'I think we physicians, and for that matter, all of the Arkansas health care consumers, are sitting on a time bomb. We are the pawns with our destiny being controlled by the national executives of St. Paul, who can at any time decide to leave our state if their requests for policy changes and premium increases are not granted.

'Now, you have heard that the Arkansas Legislature did address itself to the impending crisis. It did pass two bills. This was discussed earlier. One was to create a joint underwriting association to provide us with malpractice insurance if St. Paul pulls out. The other bill introduced by a physician member of the Medical Society and the Senate was to set up a mechanism of non-binding arbitration. But St. Paul said no to this. So these bills really stopgap matters but don't get to the heart of the matter. The Arkansas Legislature cannot deal with this crisis adequately within the framework of our present constitution. Under the un-current Arkansas Constitution, binding arbitration in medical malpractice claims is not permitted. This is the heart of the matter. The medical malpractice amendment was placed in the Workmen's Compensa-

tion part of our State Constitution so that the fewest number of words could be added to our Constitution to accomplish the desired goals of giving our State Legislature adequate authority and freedom to deal to this problem. As I emphasized earlier, this is only an enabling amendment. The amendment does give the Legislature the authority to establish binding arbitration if this approach is judged by the Legislature to be in the best interest of the health care consumer. The fact, and we must emphasize this to our patients, that it is in the Workmen's Compensation section in no way indicates or implies that the Legislature will establish a Workmen's Compensation system to handle malpractice claims. No one is saying that passage of the medical malpractice amendment in itself will insure the solving of this crisis. But I do not think there is a ghost of a chance that our Arkansas Legislature can come up with a legislative package that has any hope of solving the malpractice crisis without the passage of Amendment 58. You must realize that only three amendments can be introduced each year. This is our chance until 1978. If there is a crisis,



A. S. Koenig, Jr., Fort Smith (right) president for 1976-77 and W. Payton Kolb, Little Rock, president-elect.

there may not be another chance because we may not be able to get the amendment on the ballot. Some of you say the crisis in Arkansas is not as bad as in other states. Let's just wait and let them solve it. But I think this is only inviting disaster because if the states do not solve the medical malpractice problem soon, the United States Congress already has bills to force a national solution for us. But, these bills are of the 'no fault' type, arbitration type, and to be protected from medical malpractice under each of these bills, the physician must accept assignment or become associated with a Federal-Government-administered health program. I personally do not want Federal intervention in the medical malpractice crisis; I want to see it solved at the state level. The Arkansas Trial Lawyers Association has signaled that it is going to actively campaign to see that Amendment 58 is defeated in November. It has been criticized as 'trying to put doctors above the law,' 'special interest legislation for doctors and insurance companies,' 'anti-consumer legislation.' I personally do not feel that any of this is true. I feel that it is a very pro-consumer amendment.

After all, it is intended to help preserve health care delivery in Arkansas. This is what the health care consumer needs in Arkansas. I have had the privilege of hearing a representative of the Arkansas Trial Lawyers Association speak at our Fayetteville Rotary Club in March of this year, condemning roundly Amendment 58, saying the only real problem is that there is increased medical malpractice itself. Now, remember, generally when there is an amendment which draws organized opposition, it is defeated. Now, I sincerely feel that the passage of this amendment is in the best interest of the public and I hope you join me in this. We must convince the public of the fact. We must reach all of the public with our message. I urge physicians to write letters to their own patients, telling why passage of Amendment 58 is in their best interest. It is well known that patients respect and love their own individual physician but many do not like physicians in general. Promoting the passage of Amendment 58 will take time and effort and money on your part but I would be willing to bet the time that you spend during these next six months promot-

ing Amendment 58 would be much less time than you would spend preparing your own defense in a malpractice suit. The money that you would spend in preparing these letters that you would distribute would be a lot cheaper than the increase of your malpractice premiums over the next few years if we don't solve this problem. It would only take a couple of hours to dictate a short letter to your patients. We have been doing this at our clinic for the last month, utilizing facts which the leadership of our Society will supply you. It can be typed on your own letterhead. It takes not more than probably \$100 or \$200 to have a couple thousand copies of the letter printed and distributed to your patients while they are waiting to see you. This would be time and money well spent. It has been shown through experience that television, radio and newspaper ads in support of causes which physicians believe in are not effective ways to get public support because the public just believes that rich doctors are spending a lot of money to try to brainwash them. Therefore, to reach the people of Arkansas, we must have grass roots physician support and each and every physician must do his part. Let me translate this briefly in conclusion, into simple math. If each one of us 1,500 physicians in Arkansas in the next six months can get 333 of his patients to vote for Amendment 58 in November, this will add up to 500,000 'yes' votes, which should be considered a mandate from the people of Arkansas that they want the medical malpractice crisis in Arkansas solved quickly, equitably, and comprehensively at the state level. Therefore, I do move the acceptance of and approval and implementation of this resolution after appropriate study and editing by a reference committee of our Society as an expression of support of the physicians of the House of Delegates as representing all of the physicians in the State of Arkansas for Amendment 58. Thank you." The resolution was referred to a Reference Committee.

Speaker Chudy called for resolutions. With approval of delegates present, Jerry Mann of Clark County presented a resolution concerning third party payments. He read the resolved portion of the resolution as follows:

"The Clark County Medical Society requests all third party payees to allow payments either



T. E. Townsend of Pine Bluff makes his "President's Address" to the House of Delegates on Sunday, April 25, 1976.

directly to the physician or to the patient as the doctor and patient agree, and, that the resolution be presented to the Arkansas Medical Society with the recommendation that it be passed and expedited by all means consistent with the Constitution of the Arkansas Medical Society and as rapidly as possible."

C. R. Ellis of Hot Spring County then presented an identical resolution from his county society and requested the floor of the House to speak regarding the resolution. He spoke as follows: "As was just stated to you by an earlier speaker, if we do have to go up on premium rates for liability insurance and we are forced to take assignments for all of our payments from the government, all we would lack would be an attachment to the Medicare law saying that you have to take assignment because you have to take it on all of the others. Then they put the squeeze on our fees and our professional liability goes up, you see where you are left. This is merely saying that you have a choice whether the patient receives the money from the government and pays you or gets a refund or whether you have to accept it straight from the government, which gives them total control of your fees. Of course, I will be glad to speak to it; I am expecting to speak to it again Wednesday after we have studied it in Reference Committee."



Mrs. Carl Wilson of Fort Smith, 1976-77 President of the Arkansas Medical Auxiliary, pledges support of the Auxiliary in Society projects during the coming year.

Speaker Chudy then called on the president and chief executive officer of Arkansas Blue Cross-Blue Shield, who made the following presentation to the House.

Presentation By Dr. Mitchell

"I appreciate the time on the agenda. Of the many relationships that Blue Cross-Blue Shield has, there exists a traditional relationship much valued between Arkansas physicians and the Society. Your interest, your participation, and your support are very important to our success in providing affordable, reliable, and realistic medical care insurance to your patients and the 570,000 subscribers that we have. Our most traditional relationship, of course, is represented by the six physicians that you elect to go on our Board of Trustees. Also, since 1968, twenty-five physicians appointed by the Council representing all fields of practice have conscientiously served as the Medical Service Review Committee (MSRC) which provides meaningful peer review to Blue Cross-Blue Shield in all of our programs. So, as in the past, we once again seek your opinion and hopefully your acceptance and support of a major change in Blue Shield. This has nothing to do with any government program; it involves private, Blue Shield coverage.

In 1968, I appeared before the House of Delegates and reviewed with you, and you later approved, a UCR (usual, customary and reasonable) payment mechanism for Blue Shield. The last two years, we have on staff been looking very closely at the Blue Shield UCR program to see if it continued to meet the desirable features of a good payment mechanism on behalf of our subscribers, physicians and claims. For our subscribers, of course, a subscriber program must be understandable, dependable, affordable, and not create any confusion between the physician and the patient. For physicians, the same is true, along with some additional features. That is, the payment mechanism should be clearly defined. The payment limit should be equitable and reasonable. The payment limit should be updated when necessary through mechanisms which avoid undue escalation and avoid the recognition of unreasonable charges. To report services, there must be a coding and nomenclature which clearly and adequately expresses the professional services that physicians do today. In other words, it must be contemporary and moderate. There must be peer review to assess the quality of care, appropriate utilization of services, and the determination of reasonable payment in unusual situations. A desirable program for Blue Cross-Blue Shield would be the sum of all those features. In essence, subscriber acceptance, and individual physician participation and support.

'We do not believe that the current UCR program meets all these desirable criteria. Therefore, we are proposing a different program which I hope you will endorse conceptually so that we can plan for implementation around January 1, 1977. The new Blue Shield program in essence, would be as follows:

- 1. We would establish a new procedure code system. That is, we would replace the current four-digit code section of the Physician's Manual with a five-digit procedure code section patterned after the AMA Current Procedural Terminology (CPT).*
- 2. We would have a published fee schedule. That is, we would establish maximum fee limits to replace the UCR for each field of practice on a statewide basis with the dollar limits listed along side each five-digit procedure code and nomenclature.*



Members of the House of Delegates in session April 28, 1976.

The fee schedule would be updated annually using a reasonable index such as the all-services component of the consumer price index.

3. *There would be peer review with access to the Medical Services Review Committee physicians or the Plan to reveal utilization and charges in unusual situations.*
4. *The Physician's Participating Agreement would be amended wherein the physician would agree to bill his usual charge made to all patients on forms provided by the Plan, which as you know is the uniform AMA form at this time, and agree to accept an amount not to exceed the published fee schedule as payment in full for covered services except for any applicable deductible and co-insurance. In unusual situations, either physicians or the Plan may gain access to peer review. Both the physician and the Plan agree to accept the recommendation of the recognized peer review body of the Arkansas Medical Society as binding on both parties.*

'As you might imagine, we are asking for your collective consideration of this concept. We have never, nor would we now, ask for your collective approval of a specific schedule. The decision to participate is a matter for each individual physician to make after he has had the opportunity to review the final program details and to review the published fee schedule. Thus far, this concept has been endorsed for your consideration by our Board of Trustees, the Medical Services Review Committee of the State Society, and your Council. Again, I thank you for time to appear on your agenda and I will be at the Reference Committee hearings to further explain the program and answer any questions. Thank you.'

Speaker Chudy advised members of the House that the report would be referred to a Reference Committee of the House.

Speaker Chudy called on C. C. Long, Chairman of the Council, for a supplementary report. Chairman Long pointed out that the report had been duplicated and distributed to members of the House. It was moved by Kolb that the re-

port be referred to the Reference Committee without being read on the floor of the House, and it was so voted.

Chairman Long then requested that Alfred Kahn, Jr., come to the rostrum. He called the attention of the House to the fact that Dr. Kahn has served for twenty years as editor of the *Journal of the Arkansas Medical Society*, working continually for improvement in the publication and receiving very little recognition. As a token of the Society's thanks, he presented to Dr. Kahn a framed certificate reading as follows: "Presented to Alfred Kahn, Jr., in grateful appreciation for dedicated effort in the advancement of medical science and in recognition of his unique contribution as editor of the *Journal of the Arkansas Medical Society* by the Arkansas Medical Society, April 1976. C. C. Long, Chairman of the Council, and T. E. Townsend, President." Dr. Kahn expressed his appreciation to the Council and to the House. He indicated that he had received much support from the executive vice president, Paul Schaefer, and he expressed thanks to all of the people who had contributed to the success of the *Journal*, particularly the people at the University of Arkansas Medical Center, for their support through the years.

Speaker Chudy amended assignments to the Reference Committees as follows: Reference Committee No. 1: Add Report of the Council (with exception of Item 6 from the December 14, 1975, report) and delete the Committee on Medical Education report. Reference Committee No. 2: Add Report of the Committee on Medical Education, Report of the Committee on Medical Legislation, Hot Spring County Resolution, Clark County Resolution and deletion of the Council report with the exception of Item 6 of the December 14 meeting, which is to be considered by Reference Committee No. 2. Reference Committee No. 3: Add Resolution from the Washington County Medical Society and the presentation on Blue Shield by Dr. Mitchell.

Speaker Chudy urged members to attend the open hearings of the Reference Committees and to participate in the discussion of the various items of business.

Vacancies on the Arkansas State Medical Board and the Arkansas State Board of Health were announced by Speaker Chudy. Congress-

sional district meetings for election of nominees were announced.

Meetings were held on the floor to select district representatives to the Nominating Committee. Selected were Richard Martin, J. J. Magie, David Lockhart, Charles Blackmon, George Warren, A. E. Andrews, Robert McCrary, William S. Orr, H. V. Kirby, and Ken Lilly.

The first meeting of the House of Delegates of the convention adjourned at 3:30 p.m.

ADDRESS OF THE PRESIDENT ARKANSAS MEDICAL SOCIETY

T. E. Townsend

I would like to thank each of you for the honor you bestowed upon me one year ago. It has been a privilege to serve as your president.

I encourage you to review the activities of the various committees when the March issue of the *Journal* reaches you. These committees chaired by dedicated individuals determine to a great extent the concerns and future policies of the Society. I would especially like to thank Asa Crow and the program committee for the excellent program they have in store for us.

So many things have happened in the past year that are so important to the practice of medicine that I will attempt to touch only the highlights for most of them.

One of the nationwide developments which affects all of us is the combination of Comprehensive Health Planning, Regional Medical Programs and Arkansas Health Systems Foundation into four Health Service Agencies. The agencies are to determine the funding of most all health programs involving public funds. There are some of us who are concerned about the control they may also have over private expansion of health care. These HSA's will determine where to build—how much to build and when. We asked for representation on the boards and got only token representation. I urge you to become involved in the activities of the HSA in your region.

Dr. Joe Verser, who has served as Secretary of the State Medical Board so outstandingly for these many years and deserves all of our gratitude, has been trying to work out some solutions to the debate between the students, the Healing Arts Board and the State Medical Board. I have met with Dr. Verser, Dean Bruce and the Heal-



Alfred Kahn, Jr., thanks the Society for certificate of appreciation which was presented to him by C. C. Long as Chairman of the Council.

ing Arts Board and we hope to have a satisfactory solution.

Many physicians have been concerned about the Medicare geographic distribution of Arkansas for physician reimbursement. The Society and Blue Cross-Blue Shield have tried every means available to have the state declared one district. We have been refused on each attempt. Congressmen Hammerschmidt and Thornton have introduced a bill that would allow this. We hope this will pass in the near future.

By now all of you are well aware of the success that we had in getting the Malpractice Amendment on the ballot this fall. I must say that we had some rather exciting moments with this. Elvin Shuffield and Eugene Warren worked long and hard on this and went far beyond the call of duty in getting our Legislators to agree to put this to the vote of the people. The officers of the Society feel that the passage of this amendment depends upon the patient-physician relationship more than anything else. Only by each physician informing his patients of the im-

portance and necessity of this amendment passing are we going to succeed. As you know, the amendment merely gives the State Legislature the right to determine how to best compensate the injured party. This is all we ask. We are well aware of the fact that some people are injured medically and we feel they should be the ones compensated. We would like to end the days of 75-80% of the monies paid for liability going for other than compensating the injured party. You will be well informed of the Society's plans.

In 1951, on Page 62, Volume XLVIII, No. 2, of the Journal of the Arkansas Medical Society, there appears this article and I quote:

"The Council has selected Paul Charles Schaefer, a native of Saint Louis, as Executive Secretary of the Society to replace Sid Wrightsman. Mr. Schaefer is a graduate of the University of Missouri with the degree of Bachelor of Science in Business Administration and has an extensive experience with the Arkansas Missouri Power Company, in administrative ap-

pointments with the Fourth Army Headquarters, in private business and in sales managerial capacities. During World War II, he served as a pilot in the Air Corps flying in the CBI Theater. In civic activities, he served as Boys Work Chairman for the Rotary Club, in various Boy Scouts of America offices, holding the coveted Eagle Scout Award, as Master and Junior Counselor offices in the DeMolay organization and professes an interest in golf, hunting and fishing."

In the 25 years that Paul has devoted to the Society, we have become a cohesive unit representing the needs of medicine in the state and nation. He is a true "Pro" in every sense of the word and the best interest of the people and the physicians have always been first in his efforts.

I would like to conclude by having this House of Delegates stand and salute the best friend that the Arkansas Medical Society has ever had — Paul Charles Schaefer.

REPORT OF THE COMMITTEE ON MEDICAL LEGISLATION

Elvin Shuffield, Chairman

Mr. Speaker, Officers, Members of the House of Delegates, Members of the Arkansas Medical Society and Guests:

The recent session of the extended session of the Arkansas Legislature required an extraordinary amount of work. To all of the members, I wish to take this opportunity to thank you for your splendid cooperation and phoning the members of the legislature. I do not believe I have ever seen such concerted effort on the part of this membership. The original House Joint Resolution No. 17 was changed to House Joint Resolution No. 18 and this passed both Houses and now is proposed Constitutional Amendment No. 58 and let me urge you to keep this number in your mind at all times through November.

This session was extremely interesting from the standpoint that Mr. Warren and I would daily sort of run a little roll call among ourselves to see where we stood and it appeared that we had all the votes necessary to pass the House Joint Resolution No. 18, but yet Mr. Schaefer and his staff were receiving telephone calls that we were not talking up this resolution, we were not working on it hard enough and if

we did not get busy, we would lose the resolution. When the roll call was over, the House vote was 86 to 7 in favor of the resolution and it was interesting that of the 7 "no" votes, 5 of these would be what I termed plaintiff attorneys.

Then we had very similar experience in the Senate hearings and on the final roll call it was 32 to 1 and again an attorney was the sole vote of record against us.

We are now in the position of a world series baseball game with the winning hitter being at bat and there are two strikes and three balls and if we do not hit this last pitch, then we have lost everything that we have worked for up to date.

It is going to be necessary for each one of you to take a very active part in contacting the voters to support the proposed Constitutional Amendment No. 58 and remember, this is not an amendment to help doctors. This is to help the people. This proposed amendment can only lead to legislation that will help to solve the problem. The amendment itself will not do a thing except permit the Legislature to try to work out the problem. In our endeavors we are hoping that the legislation in January 1977, will be worked out in conference before we ever go to the special session and try to solve our problems to please most of the people. It must be understood that there will be a few people that could never be pleased with whatever legislation is enacted. This amendment will cover hospitals, nursing homes, M.D.'s, osteopaths, dentists, chiropractors, registered nurses, licensed practical nurses, psychiatric technician nurses, chiropodists, pharmacists, psychologists, veterinarians, physical therapists, inhalation therapists, hearing aid dispensers, speech pathologists and audiologists. In spite of some of the newspaper statements to the contrary, there is absolutely nothing in this proposed amendment that would limit the recovery of a patient or deny him proper legal proceedings.

I wish again to thank the membership of this Society for its splendid work, and also thank Mr. Eugene Warren for the splendid achievements he made and thank Mr. Schaefer, Mr. McIntosh and Miss Richmond and their staff for all the telephone calls and good services they rendered in helping us to pass this legislation.



Richard E. Palmer, Alexandria, Virginia, president-elect of the American Medical Association, visited with the Council of the Arkansas Medical Society at its meeting on Sunday, April 25th. He discussed problems of organized medicine with State President I. E. Townsend.



Executive Vice President Paul C. Schaefer, AMA President-elect Richard E. Palmer and Society President T. E. Townsend in one of the lighter moments of the convention.



In his address to the House of Delegates on Sunday, President Townsend referred to the August 1st retirement of Paul C. Schaefer as Executive Vice President and the House gave Mr. Schaefer a standing ovation.

**RESOLUTION TO AFFIRM SUPPORT FOR
AMENDMENT 58 (MEDICAL MALPRACTICE
AMENDMENT) TO ARKANSAS
STATE CONSTITUTION**

By Washington County Medical Society

Proposed April 6, 1976

WHEREAS, there is a medical malpractice crisis in Arkansas now, and

WHEREAS, medical malpractice claims against physicians and hospitals are increasing in Arkansas at an alarmingly rapid rate, and this rate appears to be increasing, and

WHEREAS, there is currently only one Medical Malpractice Insurance Company still doing business in Arkansas, and the new "Claims Made" Policy, which is the only type of policy now issued by that company, has taken away from physicians the right to insist on defense in a court of law in cases of alleged medical malpractice, and has created other undesirable restrictions on insurance coverage for physicians facing medical malpractice claims, and

WHEREAS, Arkansas physicians, working through the Arkansas Medical Society, did encourage the Arkansas General Assembly to propose Amendment 58 (Medical Malpractice Amendment) to the people of Arkansas for approval or rejection in the General Election on November 2, 1976, and

WHEREAS, passage of Amendment 58 is essential, if future General Assemblies of the State of Arkansas are to have proper and adequate freedom and authority to enact an adequate, comprehensive, and equitable legislative package solution for the current medical malpractice crisis in Arkansas that would be in the best interest of the vast majority of health care consumers in Arkansas, and

WHEREAS, if the current medical malpractice crisis in Arkansas is not solved promptly at the state level, health care services in Arkansas may soon deteriorate to the great detriment of the vast majority of health care consumers in Arkansas, and Federal legislation may be required to support and try to preserve the health care delivery system in the United States,

THEREFORE, BE IT HEREBY RESOLVED,

THAT we, the physicians in the Washington County Medical Society of the State of Arkansas,

do hereby affirm our support for the passage of Amendment 58 (Medical Malpractice Amendment) to the Constitution of the State of Arkansas in the General Election on November 2, 1976, as the first step in securing the proper solution to the medical malpractice crisis in Arkansas.

THAT we believe that passage of Amendment 58 is very much a "pro-consumer" amendment and in the best interest of the vast majority of health care consumers in the State of Arkansas since it seeks to preserve the delivery of high quality medical care in Arkansas, and

THAT we urge the Council and House of Delegates of our Arkansas State Medical Society to adopt a similar Resolution at the forthcoming state meeting in April, 1976, and

THAT we urge that the dilemma of the physicians and the hospitals in Arkansas be presented to the general public of Arkansas in a vigorous way that is primarily based on a personal one-to-one approach between each individual physician and his patients and friends. This can be done by a personal letter from a physician to his patients or personal verbal contacts as speeches to clubs, organizations, or other groups of citizens, or more informal personal contacts to convince citizens that passage of Amendment 58 is in their own personal best interest, and

THAT we urge all physicians in Arkansas be strongly encouraged to participate in this campaign, and that we urge that formal advertising, as on television, radio, or through newspapers be held to the minimum amount necessary for success.

**RESOLUTION FROM CLARK COUNTY MEDICAL
SOCIETY REGARDING THIRD PARTY PAYMENTS**

WHEREAS, financial arrangements between the physician and his patient have always been considered an integral part of the doctor-patient relationship, and

WHEREAS, the doctor-patient relationship has always been a major factor in the welfare of the patient, and

WHEREAS, third party payments directly to the physician have eroded the doctor-patient relationship by interfering with financial arrangements between physicians and patients; now

THEREFORE, BE IT RESOLVED, that the



Past Presidents attending a breakfast on Wednesday were Ben N. Saltzman, T. E. Townsend, H. W. Thomas, H. King Wade, Jr., Joe Verser, Jack Kennedy, C. R. Ellis, Stanley Applegate, and Robert Watson.



Members of the Fifty Year Club were honored at a breakfast on Tuesday morning. Present were D. L. Owens, D. B. Stough, Eva F. Dodge, Curtis W. Jones, W. W. Chamberlain, Gaston Hebert, R. H. Whitehead, G. Allen Robinson, and Mac McLendon.



On behalf of the American Medical Association's Education and Research Foundation (AMA-ERF) President Townsend presented a \$20,512 grant to the University of Arkansas College of Medicine and expressed appreciation to Mrs. David Barclay of the Auxiliary for their work in raising funds for AMA-ERF. Mr. George Warner, Assistant Dean for Administration at UACM, accepted the grant for the school.



Associate Executive Vice President Leah E. Richmond responds to vote of the House naming her "Sweetheart of the House of Delegates."

Clark County Medical Society request all third party payees to allow payments either directly to the physician or to the patient as the doctor and patient agree, and, be it further resolved, that this resolution be presented to the Arkansas Medical Society with the recommendation that it be passed and expedited by all means consistent with the Constitution of the Arkansas Medical Society and as rapidly as possible.

RESOLUTION FROM HOT SPRING COUNTY MEDICAL SOCIETY REGARDING THIRD PARTY PAYMENTS

WHEREAS, financial arrangements between the physician and his patient has always been considered an integral part of the doctor-patient relationship; and

WHEREAS, the doctor-patient relationship has always been a major factor in the welfare of the patient; and

WHEREAS, third party payments directly to the physician have eroded the doctor-patient relationship by interfering with financial arrangements between physicians and patients; now

THEREFORE, BE IT RESOLVED, THAT the Hot Spring County Medical Society request all third party payees to allow payments either directly to the physician or to the patient as the doctor and the patient agree, and be it further resolved, that this resolution be presented to the Arkansas Medical Society with the recommendation that it be passed and expedited by all necessary means consistent with the Constitution of the Arkansas Medical Society and as rapidly as possible.

SUPPLEMENTAL REPORT OF COUNCIL

C. C. Long, Chairman

The Council of the Arkansas Medical Society met on March 14, 1976, and transacted the following business:

1. Chairman Long advised the Council that the proposed constitutional amendment on malpractice has been designated Amendment No. 58 and that members should begin using that identification in communications with patients.
2. Decided against participation in a hearing before the Commissioner of the Arkansas Department of Social and Rehabilitative Services on the proposed implementation of the Maximum Allowable Cost regulations for drugs under the Medicaid Program.
3. Decided against participation with the Pharmaceutical Association in a court test of the Maximum Allowable Cost regulations.
4. Voted not to pay Medical Society representatives for attendance at meetings of the Health Systems Agencies.
5. Approved participation in a Southwestern States Reception at the AMA meeting in Dallas in June 1976.
6. Voted to present a certificate of appreciation to Dr. Alfred Kahn for his many years of service as editor of the Journal of the Society. The Council expressed the hope that Dr. Kahn would continue in this capacity for many years to come.
7. Approved the annual report of audit of the Society records.
8. Voted to eliminate the Student AMA Liaison Committee, Senior Medical Day Committee, and the Arkansas State Advisory

Around the Convention



Charles F. Wilkins, Jr., of Russellville and C. C. Long of Fort Smith confer on some of the problems of the Society.



Spencer Albright of Fayetteville solicits support for the Society's campaign to get Amendment 58 approved by the voters in November.



G. Thomas Jansen, Pulaski County Delegate, presents questions to the chief executive officer of the Arkansas Blue Cross-Blue Shield, George K. Mitchell, on the proposed change in Blue Shield payments.



Mrs. A. A. Little, Dr. and Mrs. Jim Lytle, and Dr. and Mrs. Henry Kirby are greeted by Sharon Allen of Blue Cross-Blue Shield at the Monday evening party.

Committee to the Selective Service System.
Voted to update the membership on the following committees:

Physician-Nurse Joint Practice Committee
Committee on Constitutional Revision
Medical School Committee
Committee on Pharmacy

Requested the District Councilors to recommend changes in District Professional Relations Committee.

9. Heard Congressman John Paul Hammerschmidt discuss his legislative proposal, H.R. 10641, designed to place all of Arkansas in one district for the payment of Medicare and Medicaid fees.
10. Voted to change Leah Richmond's title to Associate Executive Vice President and to change John McIntosh's title to Assistant Executive Vice President.

11. Voted to approve the Arkansas Medical Society Employees' Pension Trust Plan with the provision that the waiting period for eligibility be left to the discretion of the plan trustees.
12. Approved an educational campaign proposed by Mr. Schaefer to convince the people of the state that they should support Constitutional Amendment No. 58, the malpractice amendment. The plan is based on a one-to-one personal contact approach. The campaign is to be conducted by the headquarters staff and members of the Medical Society.
13. Approved a plan presented by Mr. Schaefer that he retire August 1, 1976, as Executive Vice President of the Society. Included in the plan was the employment of Dr. C. C. Long as Executive Vice President to replace Mr. Schaefer.



FINAL SESSION

HOUSE OF DELEGATES

Wednesday, April 28, 1976

Speaker of the House Amail Chudy called the House to order at 10:00 A.M. on Wednesday, April 28, 1976. Invocation was by Ken Lilly.

The Executive Vice President, Mr. Schaefer, called the roll of members. The following delegates, officers, and members seated as delegates by action of the House were present:

ARKANSAS, R. H. Whitehead; ASHLEY, Donald L. Toon; BAXTER, John F. Guenther; BOONE, Joe Bill Wilson; BRADLEY, George F. Wynne; CHICOT, Charles D. Blackmon; CLARK, R. Jerry Mann; CLEBURNE, William M. Wells; CRAIGHEAD-POINSETT, James W. Sanders, Frank James, Joe Verser, Clarence Gossett; CRAWFORD, Millard C. Edds; CRITTENDEN, Milton Deneke; FAULKNER, J. J. Magie; GARLAND, Robert L. Hill, E. K. Clardy, Robert L. Lewis; GRANT, Curtis B. Clark; GREENE-CLAY, A. J. Baker, HEMPSTEAD, Jim McKenzie; HOT SPRING, Robert H. White; INDEPENDENCE, J. E. Lytle; JEFFERSON, Banks Blackwell, T. E. Townsend, George V. Roberson; JOHNSON, Boyce W. West; LEE, Dwight W. Gray; MISSISSIPPI, M. J. Osborne; MONROE, N. C. David, Jr.; NEVADA, H. Blake Crow; POLK, David Fried; POPE, James M. Kolb; PULASKI, Edgar Easley, Raymond Biondo, J. B. Cross, James Weber, William Jones, Paul Cornell, Fred Kitter, J. Mayne Parker, William G. Reese, George K. Mitchell, W. Ray Jouett, Ben N. Saltzman, Robert Watson, Robert Valentine, Purcell Smith, G. Thomas Jansen; SEBASTIAN, Robert Hughes, Ken Lilly, Kemal Kutait, Carl L. Williams, A. C. Bradford; ST. FRANCIS, David L. Lockhart; UNION, George Warren; WASHINGTON, Joe Parker, Stanley Applegate, John Vinzant; COUNCILORS, Eldon Fairley, John B. Kirkley, Paul Gray, John Bell, L. J. P. Bell, Fred C. Inman, Raymond Irwin, John Burge, J. B. Jameson, John H. Moore, A. E. Andrews, C. Lynn Harris, Robert McCrary, Curtis B. Clark, W. Payton Kolb, William S. Orr, Jr., Henry V. Kirby, C. C. Long, Kemal Kutait; PRESIDENT, A. S. Koenig, Jr.; FIRST

VICE PRESIDENT, Asa Crow; SPEAKER, Amail Chudy; VICE SPEAKER, Charles F. Wilkins, Jr.; SECRETARY, Elvin Shuffield; TREASURER, Kenneth R. Duzan; PAST PRESIDENTS, Joe Verser, C. R. Ellis, H. W. Thomas, Ross Fowler, John P. Wood, Ben N. Saltzman, and T. E. Townsend.

Speaker Chudy called for the report of the Nominating Committee. The following report was presented by Ken Lilly, Committee Chairman:

REPORT OF THE NOMINATING COMMITTEE

For President-elect: W. Payton Kolb, Little Rock; C. Randolph Ellis, Malvern

For First Vice President: Mahlon O. Maris, Harrison

For Second Vice President: Boyce W. West, Clarksville

For Third Vice President: John M. Hestir, DeWitt

For Treasurer: Kenneth R. Duzan, El Dorado

For Secretary: Elvin Shuffield, Little Rock

For Speaker, House of Delegates: Amail Chudy, North Little Rock

For Vice Speaker, House of Delegates: Asa A. Crow, Paragould

For Councilors:

First District: John B. Kirkley, Jonesboro

Second District: John E. Bell, Searcy

Third District: L. J. P. Bell, Helena

Fourth District: John P. Burge, Lake Village

Fifth District: J. B. Jameson, Camden

Sixth District: C. Lynn Harris, Hope

Seventh District: Robert F. McCrary, Hot Springs

Eighth District (two-year term): William S. Orr, Jr., Little Rock; (one-year term): W. Ray Jouett, Little Rock

Ninth District: Rhys A. Williams, Harrison

Tenth District (two-year term): Kemal Kutait, Fort Smith; (one-year term): Charles F. Wilkins, Jr., Russellville

For Delegate to the American Medical Association (January 1, 1977 - December 31, 1978): Joe Verser, Harrisburg

Alternate Delegate to the American Medical

Association (January 1, 1977 - December 31, 1978): A. E. Andrews, Texarkana

With Vice Speaker Wilkins presiding, the House accepted the Report of the Nominating Committee as presented.

C. R. Ellis requested that his name be removed from the proposed slate of officers. There were no nominations from the floor and the House elected by acclamation the slate of officers as proposed by the nominating committee, as amended to delete the name of Dr. Ellis as a candidate for president-elect.

Speaker Chudy requested that the eighth district councilors, William S. Orr and W. Ray Jouett, escort the new president-elect to the rostrum. W. Payton Kolb thanked the members of the House for the honor bestowed upon him. He pledged his full support to President Koenig and the other officers during the coming year.

The report of Reference Committee No. 1 was presented by Chairman Raymond Irwin.

REFERENCE COMMITTEE No. 1

Raymond Irwin, Chairman

Reference Committee No. 1 composed of Raymond A. Irwin, Chairman, John E. Bell, John B. Kirkley and J. B. Jameson met Sunday afternoon, April 25, 1976. The following committee reports were considered:

1. *Committee on Public Health* — The report of the committee was received and approved. Dr. Ben Saltzman, chairman of the committee, was present and reported on the meeting in Arizona. He also announced that the Arkansas State Conference on Rural Health will be held Friday, May 28th, at the Camelot Inn in Little Rock.

Mr. Speaker, the Reference Committee recommends that this report be accepted, and I so move.

2. *Committee on Mental Health* — The report was reviewed and several people spoke relative to the matters discussed in this report. The committee would like to call attention to the recommendations made in this report and urge follow-up by the Medical Society on recommendations made. Mr. Speaker, I move that this report be accepted.

(This portion of the report was approved by the House as presented.)

3. *Physician-Nurse Joint Practice Committee* — The report was reviewed. Dr. Robert Watson, chairman of the committee, was present and spoke to the group relative to the problems encountered by his committee. He reports improved relations in that the nurses want to join with the doctors to render better care for the patient and not compete as individual nurse practitioners. Dr. Watson suggested that each councilor district establish a nurse-physician committee where free exchange of information and attitudes can occur.

Mr. Speaker, the Reference Committee recommends that this report be accepted and I so move.

Upon the motion of Watson and Ellis, the House voted to amend the Reference Committee Report by deletion of a portion of the third sentence. The House later moved to reconsider this item and, upon the motion of Purcell Smith and William Reese, approved the following revision in Item 3, Physician-Nurse Joint Practice Committee. "The report was reviewed. Dr. Robert Watson, chairman of the committee, was present and spoke to the group relative to the problems encountered by his committee. He reports that the nurses want to join with the doctors in continuing to render better care for the patient. Dr. Watson suggested that each councilor district establish a nurse-physician committee where free exchange of information and attitudes can occur."

4. *Student AMA Liaison Committee* — The Committee reviewed the report and noted that there are two distinct ideas embodied in this. The first recommendation to better acquaint students at the University of Arkansas College of Medicine with the workings of the Arkansas Medical Society is to be carried out.

The second item in this report deals with the students' attempts to alter the requirement of taking the Healing Arts examination. Mr. Steven Snow, representing the Junior Class of the College of Medicine, spoke on the subject as did Dr. Verser and others present.

The Committee recommends that this report be accepted as published and, Mr. Speaker, I so move.

5. *Report of the Council* — The Committee reviewed the report of the Council as printed



Eighth District Councilors William S. Orr, Jr., and W. Ray Jouett escort W. Payton Kolb to the rostrum after his election to the position of president-elect of the Society.



President A. S. Koenig expresses the thanks of the Society to C. C. Long for his years of service on the Council of the Arkansas Medical Society and as Chairman of the Council for the last seven years. On August 1, Dr. Long becomes the Executive Vice President of the Society.



J. P. Price of Monticello, Chairman of the Board of Trustees of Arkansas Blue Cross-Blue Shield, Mrs. Price, Paul C. Schaefer, retiring Executive Vice President of the Arkansas Medical Society, Mrs. Schaefer, Mrs. Mitchell, and George K. Mitchell, President and Chief Executive Officer of BC-BS, at the cocktail party hosted by BC-BS on Monday evening of the convention.

in the March Journal and recommends that the report be accepted as published.

The Committee also reviewed the supplemental report of the Council as presented Sunday and discussion centered around Item 13 of the supplemental report. Several members present spoke to the idea that it would have been preferable to establish a search committee to find a replacement for Mr. Schaefer as executive vice president. Each speaker mentioned that their objection was not based on the persons involved but on the method employed in selecting an executive vice president.

Mr. Speaker, in view of the unique situation which exists here, the Reference Committee recommends that the action of the Council be approved, and I so move.

The Reference Committee also reviewed the following reports:

- Medicaid Underutilization Committee
- Private Insurance Review Committee
- Tenth Councilor District Professional Relations Committee
- Sixth District Councilor (A. E. Andrews)
- Seventh District Councilor (Robert F. McCrary)
- Eighth District Councilor (W. Payton Kolb)
- Tenth District Councilors
- Executive Vice President
- Arkansas Regional Medical Program
- Arkansas State Arbitration Committee

Mr. Speaker, the Reference Committee recommends that the above reports be accepted as amended, and I so move.

The Reference Committee would like to thank those who appeared before the Committee and spoke on these reports.

Mr. Speaker, this concludes our report. We recommend its adoption and approval.

The House approved the report as presented, with amendment.

Speaker Chudy called on W. Payton Kolb for the report of Reference Committee No. 2.

REFERENCE COMMITTEE No. 2

W. Payton Kolb, Chairman

Mr. Speaker and members of the House of Delegates, your Reference Committee No. Two gave careful consideration to the items referred to it and makes the following report:

Committee on Medicine and Religion, C. R. Ellis, Chairman.

Committee on Arrangements for Annual Session, Asa Crow, Chairman.

Report from Second District Councilors, Paul Gray and John E. Bell.

Report from Fifth District Councilor, J. B. Jameson.

Budget Committee, H. W. Thomas, Chairman.

Report of the State Department of Health, Rex Ramsay, Director.

Sub-Committee on Liaison with Vocational Rehabilitation, John P. Wood, Chairman.

Mr. Speaker, your Reference Committee recommends the adoption of the above reports as written.

The House voted approval of this portion of the report as presented.

Legislative Committee Report, Elvin Shuffield, Chairman.

This Reference Committee joins with the other components of this Society to thank Dr. Shuffield and Mr. Warren again for the work they have done in the legislative arena. In the fourth paragraph, the report lists the health professionals that will be affected by the proposed Constitutional Amendment 58. Inadvertently, the "nurse anesthetists" were omitted and should be included.

Mr. Speaker, your Reference Committee recommends the amending of this report to add the words "nurse anesthetists" to the next to the last sentence in the fourth paragraph and then adoption of the full report.

The House approved this portion of the report as presented.

Resolutions from the Clark and Hot Spring County Medical Societies and paragraph 6 of the Report of the Council of December 14, 1975.

These resolutions and Council action are identical in content; consequently, they were considered simultaneously. There was much discussion in the Reference Committee hearing concerning this matter and there was no opposition to the proposed action. It is recognized that methods of implementation will have to be developed and adjusted as the need arises, dependent on legislative developments, guidelines and changes in guidelines. As a result of this, implementation will have to be worked out in the framework of the administration of the Arkansas Medical Society.

Mr. Speaker, your Reference Committee rec-

ommends the adoption of the above named resolutions and Council action.

The House voted approval of this portion of the report as presented.

Committee on Medical Education, Lee B. Parker, Jr., Chairman.

Constitutional Revision Committee, Lee B. Parker, Jr., Chairman.

The reports of these two committees were considered together as the only item reported by the Constitutional Revision Committee involved the recommendation from the Committee on Medical Education. This latter committee has one specific recommendation. The recommendation is as follows: "Committee approved that a request be made to the Council to develop and institute a requirement that a physician member of the Arkansas Medical Society participate in continuing medical education programs to the extent of continued receipt of the American Medical Association Physician's Recognition Award or maintain membership in the Academy of Family Physicians in order to retain membership in the Arkansas Medical Society."

After discussion in the Reference Committee hearing, in which no opposition was expressed, it was felt approval of the House of Delegates would give full authority to the Constitutional Revision Committee to prepare the proper amendment to implement the above recommendation.

After considerable discussion on the intent of the reference to the criteria of the AMA and the Academy of Family Physicians and upon the motion of Long, the House voted to amend the recommendation so that it would read as follows: "Committee approved a request be made to the Council to develop and institute a requirement that a physician member of the Arkansas Medical Society participate in continuing education in order to retain membership in the Arkansas Medical Society." This portion of the report was approved by the House with this amendment.

Mr. Speaker, your Reference Committee recommends the adoption of the above committee reports, as amended.

Mr. Speaker, this concludes the report of your Reference Committee Number Two. We wish to thank those who appeared before this Refer-

ence Committee, and those members of the staff who assisted us.

The Report of Reference Committee Number Two, as amended, was approved by the House.

Speaker Chudy called on Kemal Kutait for the report of Reference Committee No. 3.

REFERENCE COMMITTEE No. 3

Kemal Kutait, Chairman

Reference Committee No. 3 met on Sunday afternoon, April 25, 1976. All members of the committee were present, which included John P. Burge, Allie E. Andrews and Kemal Kutait.

The reports considered by this Committee were as follows:

Committee on Hospitals, Art B. Martin, Chairman.

Committee on Public Relations, Ray Jouett, Chairman.

Committee on Insurance, Banks Blackwell, Chairman.

Medical Services Review Committee, Charles F. Wilkins, Jr., Chairman.

Seventh Councilor District Professional Relations Committee, C. F. Peters, Chairman.

Eighth Councilor District Professional Relations Committee, Richard Logue, Chairman.

Ninth Councilor District Professional Relations Committee, Ross Fowler, Chairman.

Fifth District Councilor, John H. Moore.

Sixth District Councilor, C. Lynn Harris.

Report of the AMA Delegate, Purcell Smith, Jr.

Report of Arkansas State Medical Board, Joe Verser, Secretary.

Medical Education Foundation for Arkansas, Robert Watson, President.

Washington County Resolution to affirm support for Amendment 58.

Blue Cross-Blue Shield's New Blue Shield Program.

The Committee on Hospitals' report was presented and accepted without change and I so move.

The Committee on Public Relations' report was read and accepted without change and I so move.

The Committee on Insurance report was read and accepted without change with comment

The Council Reception on Sunday Evening



Members of the Executive Committee and their wives and guests of honor Mr. and Mrs. Paul Schaefer received guests at the reception on Sunday evening. (Left to right) Dr. Elvin Shuffield, Mrs. Shuffield, Mrs. Long, Dr. C. C. Long, Mrs. Townsend, Dr. T. E. Townsend, Mrs. Schaefer, and Paul Schaefer.



Dr. and Mrs. A. S. Koenig greet members of the Society.



Mr. and Mrs. Schaefer visit with Dr. and Mrs. Frank M. Burton.

The Council Reception on Sunday Evening



Dr. and Mrs. Ben Saltzman arrive for the reception honoring Paul C. Schaefer who has served the Society for 25 years.



Among those attending the Sunday evening reception was Mrs. Louis K. Hundley, whose husband was Chairman of the Council of the Society when Mr. Schaefer was hired as its executive.



President-elect A. S. Koenig greets Asa Crow of Paragould, who served as chairman of the convention program committee.

from the committee that we would solicit comments regarding the malpractice dilemma when we discussed the Washington County Resolution. The report was accepted and approved and I so move.

Medical Services Review Committee report was read and accepted without change. The Committee wishes to thank the MSRC Committee members and their chairman, Dr. Charles Wilkins, for an outstanding job in representing the Medical Society in resolving the problems brought before it. The Committee recommends approval of the report and I so move.

The Seventh Councilor District Professional Relations Committee report was accepted and approved and I so move.

The Eighth Councilor District Professional Relations Committee report was accepted and approved and I so move.

The Ninth Councilor District Professional Relations Committee report was accepted and approved and I so move.

The Fifth District Councilor report was read and accepted and I so move.

The Sixth District Councilor report by Dr. Lynn Harris, Councilor, was accepted and approved and I so move.

The report of the AMA Delegate was read and accepted and I so move.

The report of the Arkansas State Medical Board was presented and no discussion was forthcoming from the group in attendance. However, the committee members felt that the House of Delegates should have read to it the following paragraph: "The Board approved a motion to have the attorney for the Board prepare legislation to be introduced at the 1977 Legislature which would permit the Board to require mandatory continued education in order for physicians to be recertified for licensure. The Board would have the jurisdiction to set the type of continued education and postgraduate training required."

The Reference Committee members do not take issue with this but felt it should be specifically brought out for consideration and possible discussion by the House of Delegates prior to approval. We do recommend approval of this report as contained in the Journal, and I so move.

This portion of the report was approved by the House as presented, with correction of the name of the Sixth District Councilor.

C. R. Ellis later moved for reconsideration of this item but the motion failed for lack of a second.

Medical Education Foundation for Arkansas — The report was read as contained in the Journal and accepted without controversy or modification. The Reference Committee feels that Dr. Watson has done an outstanding job in behalf of the Society with the Medical Foundation for Arkansas. He has earned and deserves our profound thanks and appreciation. Dr. Watson, we do appreciate you. We recommend approval of the report as contained in the Journal, and I so move.

The House approved this portion of the report and gave Dr. Watson a standing ovation.

Resolution to Affirm Support for Amendment 58 (Medical Malpractice Amendment) to the Arkansas State Constitution by Washington County Medical Society — The resolution was presented to the physicians in attendance and with surprisingly little discussion was endorsed unanimously by the physicians present. The Reference Committee recommends that we edit the resolution as presented by substituting the words "Arkansas Medical Society" for "Washington County Medical Society" and delete the words "That we urge the Council and House of Delegates of our Arkansas State Medical Society to adopt a similar Resolution at the forthcoming State Meeting in April 1976" where found in the resolution and endorse the resolution without further change, and I so move.

After clarification that the recommendation of the Reference Committee was to change the resolution from a resolution of the Washington County Medical Society to a resolution of the Arkansas Medical Society, the House approved this portion of the Reference Committee report.

Proposed Blue Cross-Blue Shield New Blue Shield Program — The Reference Committee was provided an indepth presentation of the concept of the new Blue Shield program by George Mitchell. There was lively discussion and many questions from the full house of physicians present at this presentation. Dr. Mitchell asked for endorsement of the concept but did, in fact, answer specific and detailed questions within

the time limit allowed by the Reference Committee. The group was polled initially by voice vote and, subsequently, by show of hands to indicate their views on this program. Five physicians were opposed to the new program and the overwhelming majority were in favor of the program as presented by Dr. Mitchell. I would like to read the program outline to you:

New Blue Shield Program

1. Establish new procedure codes — Replace 4-digit procedure code section of physicians manual with 5-digit procedure code section patterned after the AMA Current Procedural Terminology (CPT).

2. Publish fee schedule — Establish maximum fee schedule to replace UCR for each field of practice on a statewide basis with dollar limits being listed with each 5-digit procedure code and nomenclature.

3. Update fee schedule — Review annually and update using a reasonable index, e.g., "All services" component of consumer price index.

4. Peer Review — Access to Medical Services Review Committee by physicians or Plan to review utilization and charges in unusual situations.

5. Amend Participating Agreements — Physician agrees to bill his usual charge made to all patients on forms provided by the Plan and agrees to accept an amount not to exceed the published fee schedule as payment in full for covered services (except for any applicable deductibles and co-insurance).

In unusual situations, either the physician or the Plan may obtain access to peer review. Both the physician and the Plan agree to accept the recommendation of the recognized peer review body of the Arkansas Medical Society as binding on both parties.

The choice to participate is an individual decision after the physician has reviewed the final program details and the published fee schedule.

The Committee endorses the new program in concept and recommends to the House of Delegates that they also endorse it in concept, and I so move.

Dr. Jansen requested clarification of some points of the proposed program from Dr. Mitchell and there was a great deal of discussion regarding the proposal. On call for the question,

the recommendation of the Reference Committee was repeated and a standing vote was taken. There were 16 votes against approving the recommendation of the Reference Committee. There was majority approval.

Mr. Chairman, that concludes the report of Reference Committee No. 3 and I move adoption of the entire report as corrected. I would like to thank Dr. Andrews and Dr. Burge for their wisdom and patience in the Committee's deliberations.

The entire report was approved by the House as corrected.

Speaker Chudy thanked members of the Reference Committees for their work.

The report of the Council covering meetings held during the convention was requested. President Koenig requested the floor prior to presentation of the Council Report. He called the attention of the House to the fact that C. C. Long would be presenting his last report as Chairman of the Council. He commended Dr. Long for his years of service on the Executive Committee, pointing out that the Chairman normally serves for several years and provides continuity in the committee. The House gave Dr. Long a standing ovation as expression of thanks for his service as Chairman of the Council.

REPORT OF THE COUNCIL

C. C. Long, Chairman

The Council met on Sunday, April 25, and transacted the following business:

1. Appointed the following Ad Hoc Committee to give guidance to and assist in the implementation of the Amendment 58 campaign to improve the malpractice situation in Arkansas:
A. S. Koenig, Jr., 922 Lexington, Fort Smith 72901, Chairman
Spencer D. Albright, III, 1925 Green Acres Road, Fayetteville 72701
A. E. Andrews, Post Office Box 689, Texarkana 75501
Stanley Applegate, 220 Meadow Avenue, Springdale 72764
John E. Bell, 1400 West Pleasure, Searcy 72143
William W. Biggs, Helena Hospital, Helena 72342

- Raymond V. Biondo, Post Office Box 921,
North Little Rock 72115
- Banks Blackwell, 1400 West 43rd, Pine Bluff
71601
- Curry B. Bradburn, Jr., 200 Doctors Park
Building, Little Rock 72205
- John P. Burge, Lake Village Clinic, Lake
Village 71653
- Paul J. Cornell, 500 South University, Little
Rock 72205
- Asa A. Crow, #1 Medical Drive, Paragould
72450
- Wayne Elliott, 443 West Oak, El Dorado
71730
- Paul Gray, Post Office Box 82, Batesville
72501
- W. Payton Kolb, 230 Medical Towers Build-
ing, Little Rock 72205
- Ken Lilly, 1120 Lexington, Fort Smith 72901
- William G. Lockhart, 1500 Dodson, Fort
Smith 72901
- Mahlon O. Maris, Post Office Box 759,
Harrison 72601
- Richard Pearson, 1105 West Chestnut,
Rogers 72756
- William P. Phillips, Post Office Box 3507,
Fort Smith 72901
- Glenn P. Schoettle, 308 South Rhodes, West
Memphis 72301
- Elvin Shuffield, 110 Doctors Park Building,
Little Rock 72205
- Sebastian A. Spades, 421 Southwest Third,
Walnut Ridge 72476
- D. L. Toon, 310 North Alabama, Crossett
71635
- T. E. Townsend, 1420 West 43rd, Pine Bluff
71601
- Boyce West, Post Office Box 220, Clarksville
72830
- Wayne W. Workman, 527 North Sixth,
Blytheville 72315
2. Approved dues exemptions requested by the
county medical societies.

Life Membership

Gaston A. Hebert
William Decker Smith

Retirement

Robert L. Casebeer, Benton County
Caldeen D. Gunter, Benton County
James C. Barnett, Cleburne County

Joseph H. Downs, Faulkner County
Miles F. Kelly, Grant County
Alfred H. Hathcock, Independence County
Jabez F. Jackson, Sr., Jackson County
Allen R. Russell, Jefferson County
Albert B. Dickey, Lawrence County
Martin F. Heidgen, Pope County
Roy I. Millard, Pope County
William L. McNamara, Pope County
Charles C. Ault, Pulaski County
Eaton W. Bennett, Pulaski County
Rupert M. Blakely, Pulaski County
Martha M. Brown, Pulaski County
Lucas Byrd, Pulaski County
Alan G. Cazort, Pulaski County
Eva F. Dodge, Pulaski County
Ruth H. Junkin, Pulaski County
Mason G. Lawson, Pulaski County
James M. Nisbett, Pulaski County
Bennett J. Reaves, Pulaski County
Carl A. Rosenbaum, Pulaski County
Frances C. Rothert, Pulaski County
William A. Snodgrass, Pulaski County
Irving Spitzberg, Pulaski County
Charles Wallis, Pulaski County
E. Lloyd Wilbur, Pulaski County
Eustis J. Chaffin, St. Francis County
John H. Miller, Ouachita County
Paul S. Read, Van Buren County
Jeff J. Baggett, Washington County
H. L. Boyer, Washington County
Charles M. Brizzolara, Washington County
William J. Butt, Washington County
LeMon Clark, Washington County
Ruth E. Lesh, Washington County
Vincent O. Lesh, Washington County
Lawrence H. Siegel, Washington County
Ross Van Pelt, Washington County
Martin C. Hawkins, Jr., White County
James D. Kinley, White County
Louis A. Draeger, Yell County

Disability

Eugene Hildebrand, Baxter County
Benjamin F. Banister, Jr., Faulkner County
Virgil L. Payne, Jefferson County
Daniel H. Autry, Pulaski County
Richard B. Dickinson, Sevier County

Residency Training

James H. Hickman, Lawrence County
Arlis W. Loe, White County
Joe A. Abrams, Pulaski County

At the Tuesday Evening Parties



Dr. and Mrs. Elvin Shutfield.



Dr. and Mrs. John P. Burge.



Dr. George K. Mitchell and Dr. Kemal Kutait.



Dr. and Mrs. Charles F. Wilkins.

Fay W. Boozman, III, Pulaski County
 James Orien Day, Pulaski County
 Robert G. Eubanks, Pulaski County
 C. Don Greenway, Pulaski County
 Donald R. Guinn, Pulaski County
 John E. Hearnberger, Pulaski County
 Gregory S. Krulin, Pulaski County
 Robert L. Reese, Pulaski County
 Don Setliff, Pulaski County
 Jim Sharp, Pulaski County
 Frank Vieras, Pulaski County
 Thomas R. Wallace, Pulaski County
 Frank J. Wilson, Jr., Pulaski County

Medical Students

Thomas Ross Braswell, Pulaski County
 M. Carl Covery, Jr., Pulaski County
 Richard E. Dailey, Pulaski County
 Edward A. Gresham, Pulaski County
 Danny E. Grubbs, Pulaski County

Interns

Paul J. Baxley

3. Made the following appointments to the Medical Services Review Committee:
 Family: Ken Lilly, Fort Smith
 Bruce Schratz, North Little Rock
 Surgery: Raymond Irwin, Pine Bluff
 Anesthesiology: Wayne B. Glenn, Little Rock
 Neurosurgery: Robert Watson, Little Rock
 Psychiatry: Payton Kolb, Little Rock
4. Appointed the following to serve on the ArkPac Board for the following year:
 Kemal Kutait, Fort Smith
 James L. Smith, Little Rock
 E. L. Hutchison, Pine Bluff
 Sybil Hart, Blytheville
 J. Larry Lawson, Paragould
 Noel Ferguson, Harrison
 G. Thomas Jansen, Little Rock
 Allie Andrews, Texarkana
 Boyce West, Clarksville
 W. P. Phillips, Fort Smith
 William S. Orr, Jr., Little Rock (Emeritus)
 Mrs. Charles F. Wilkins, Russellville
5. Appointed Dwight Gray to the Arkansas Arbitration Commission for the Third Councilor District.
6. Reappointed the Professional Relations Committees for the following Councilor Districts:

FIRST:

F. E. Utley (Chairman), Blytheville
 B. P. Raney, Jonesboro
 T. Murray Ferguson, West Memphis

SECOND:

C. W. Jackson (Chairman), Judsonia
 Jim Lytle, Batesville
 Charles F. Wells, Morrilton

THIRD:

John M. Hestir (Chairman), DeWitt
 Carl E. Northcutt, Stuttgart
 Dwight W. Gray, Marianna

FOURTH:

Howard Harris (Chairman), Dumas
 L. R. Turney, McGehee
 George Roberson, Pine Bluff

SEVENTH:

C. F. Peters (Chairman), Malvern
 Robert F. McCrary, Hot Springs
 Thomas M. Durham, Hot Springs

EIGHTH:

Richard M. Logue (Chairman), Little Rock
 John McCollough Smith, Little Rock
 James Rasch, North Little Rock

Appointed new members to the Professional Relations Committees in other districts as follows:

FIFTH:

Appointed C. E. Tommey of El Dorado as Chairman to replace J. B. Wharton, Jr.

SIXTH:

Appointed Donald Duncan of Texarkana as Chairman to replace Paul Hughes, and James Armstrong of Ashdown to replace Rodger Dickinson

NINTH:

Appointed Charles A. Ledbetter of Harrison to replace Ross Fowler

TENTH:

Appointed David M. Williams of Russellville to replace Charles F. Wilkins, Jr.

7. Nominated Robert McDonald of Pine Bluff for the Board of Trustees of Blue Cross-Blue Shield.
8. Reappointed Martin Eisele of Hot Springs to the Board of the Medical Education Foundation for Arkansas.
9. Nominated Henry Hearnberger and Aubrey C. Smith, both of Little Rock, for the Ad-

The Society Honors Paul and Jean Schaefer



President-elect A. S. Koenig advises retiring Executive Vice President that he is to receive an IOU for an automobile to be presented to him upon his retirement in August.



President T. E. Townsend presents a bouquet of twenty-five red roses to Mrs. Paul Schaefer in recognition of her support for the past twenty-five years.

visory Commission for the Arkansas Drug Abuse Authority.

10. In order to insure expeditious action on the malpractice education campaign, the Council voted to authorize the Executive Committee to act upon all campaign matters and expenditures.
11. The Council considered the financial implications of having a \$25,000 budget deficit projected for 1976, the unforeseeable costs anticipated for the public education campaign for Amendment 58, the need for additional employees to handle new Medical Society projects such as the Continuing Medical Education program and additional legislative demands, the cumulative effects of a continuing inflation, and the necessity to catch up on the funding of the Society retirement plan as required by the new Federal law. The Council decided that these factors dictated an increase in annual State Medical Society dues. After thorough consideration of the present situation and future prospects, the Council voted unanimously to recommend a dues increase of \$100 per year, effective January 1, 1977. It was further voted to authorize increasing pension fund payments to comply with the new law governing retirement plans. Additional amount is \$19,000 per year for a period of five years.

The Council met on Monday, April 26, and transacted business as follows:

1. Discussed the continuing reluctance of some medical students to take the healing arts examination in addition to Federal Licensing Examination (FLEX). The Council resolved that, while it has sympathy with the students' problems, it endorses the policies of the State Medical Board with regard to the healing arts examination.
2. The Council voted to refer to the Medical School Committee for future recommendation a request by the American Medical Association that the state medical societies consider establishing an intern and resident business section and a medical student business section within the state society.
3. Approved the intent of the Federal swine flu vaccination campaign but decided to

leave it up to local areas to implement the program.

4. Approved a request to increase the 1976 budget in the amount of \$700 for the purchase of a desk and equipment for an additional employee in the headquarters office.
5. Voted to urge all third party agencies to adopt a universal CPT (Current Procedural Terminology of AMA) method of coding of claims forms.
6. Requested that the various specialty representatives on the Medical Services Review Committee assist the Arkansas Department of Social Services in properly coding procedures for the Medicaid Program.

The Council met on Tuesday, April 27, and transacted the following business:

1. Voted to hold the 1978 convention in Hot Springs, April 16-19. The 1977 convention will be in Little Rock, April 24-27.
2. Voted to refer to the Executive Committee consideration of the possibility of re-arranging the Annual Session schedule for the Council so that the Council members could attend the Prayer Breakfast.
3. Referred to the new Council to be elected the suggestion that it consider inviting the President of the Auxiliary to Council meetings as an observer.
4. Voted to reserve certain areas in the scientific meetings for non-smokers.

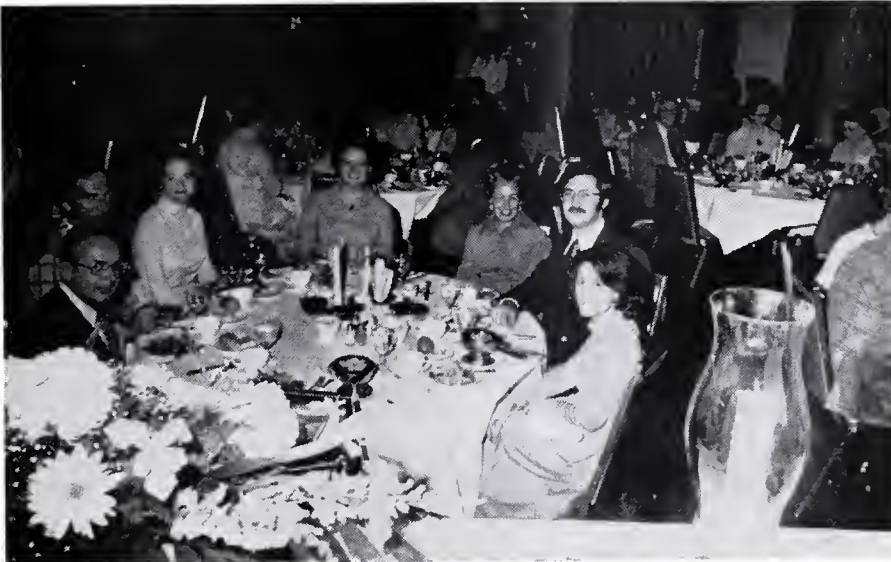
The Council met on Wednesday, April 28, and transacted the following business:

1. Authorized Mr. Warren to protest the latest filing for an increase in malpractice premiums to be filed by St. Paul Insurance Company April 29th.
2. Elected Jim Lytle to the Arkansas State Arbitration Commission.
3. Voted to request the Woman's Auxiliary to suggest an Auxiliary member for a position on the Ark-Pac Board of Directors.
4. Elected R. Teryl Brooks to represent Urology on the Medical Services Review Committee.
5. Elected Van Smith to represent Internal Medicine on the Medical Services Review Committee.
6. Voted to invite the President of the Wom-

Dr. Koenig is Installed



The members of the Society applaud Dr. A. S. Koenig as he takes the oath of office of president of the Arkansas Medical Society.



Dr. and Mrs. Wright Hawkins of Fort Smith with the family of President Koenig at the banquet on Tuesday evening. (Left to right) Dr. Hawkins, Kenneth Damann, daughter Gretchen Jacks, daughter Catherine Ann Damann, Mrs. Hawkins, son A. Samuel Koenig, III, and his wife Amalie.



Dr. Koenig makes his inaugural address.

an's Auxiliary to attend future Council meetings.

Upon the motion of Saltzman, the House voted to approve the report of the Council as presented, with the exception of the item on the dues increase.

After discussion of the item pertaining to the dues increase, Speaker Chudy called for a standing vote. There were 56 votes in favor of adoption and 8 votes against.

Speaker Chudy recognized the retiring Executive Vice President, Paul Schaefer, who spoke briefly thanking the members of the House for their support and cooperation over the years. He commended members of the House for their action in approving the increase in dues so that current Society programs could be continued and additional projects would be properly financed. He reiterated his belief in the objectives of the Society and expressed the hope that the Society would continue its progress. Mr. Schaefer expressed confidence in his successor as executive vice president and the others on the headquarters staff. The House gave Mr. Schaefer a standing ovation.

The Associate Executive Vice President, Leah Richmond, was named "Sweetheart of the House of Delegates."

The House approved the following nomina-

tions for congressional district positions on State Boards:

State Board of Health, First Congressional District:

Gus Craig, Jonesboro
H. W. Keisker, Jonesboro
W. T. Rainwater, Jonesboro

State Board of Health, Fifth Congressional District:

John V. Satterfield, Little Rock
G. Max Thorn, Little Rock
Bob G. Banister, Conway

State Medical Board, Fourth Congressional District:

George F. Wynne, Warren

Speaker Chudy expressed thanks to members of the House of Delegates and adjourned the meeting at 12:15 P.M.

REORGANIZATIONAL MEETING OF THE COUNCIL

The Council met for a brief reorganizational meeting at 12:20 P.M. on Wednesday, April 28, 1976. New members of the Council — Mahlon Maris, W. Ray Jouett, Rhys A. Williams, and Charles F. Wilkins, Jr., were welcomed to the group. John P. Burge of Lake Village was elected Chairman of the Council and Alfred Kahn, Jr., of Little Rock was re-elected Editor of the Journal.



SCIENTIFIC SESSION

The scientific program of the convention was opened at 9:00 A.M. on Monday, April 26, with Third Vice President Donald L. Duncan presiding. Gilbert S. Campbell of the University of Arkansas College of Medicine opened the program on Cardiovascular Disease by speaking on the "History of the Treatment of Cardiovascular Disease." Joseph V. Fisher of the Medical University of South Carolina discussed "Management of Emotional Factors in Cardiovascular Disease." "Problems Confronting the Family Physician in the Management of Pediatric Patients with Heart Disease" was presented by Abraham M. Rudolph of the University of California Medical School. The morning session concluded with a paper on "Ophthalmic Manifestations of Cardiovascular Disease" by Robert S. Hepler of the Jules Stein Eye Institute.

Second Vice President Mahlon O. Maris presided at the Monday afternoon general session. The first presentation on "Cardiological Update: An Amalgamation of this Last Year's Experience" was by John E. Douglas of the University

of Arkansas College of Medicine. Melvin P. Judkins of Loma Linda University School of Medicine spoke on "Modern Techniques Useful in the Evaluation of Ischemic Heart Disease." "Anesthetic Consideration for Patients With Coronary Artery Disease" was presented by Noel W. Lawson of the University of Arkansas College of Medicine and G. Doyne Williams, also of the Arkansas Medical School, presented a paper on "Recent Important Advances in Cardiovascular Surgery."

The Tuesday morning program had Asa Crow, Third Vice President and Program Chairman, as presiding officer. Bernard W. Thompson of the University of Arkansas College of Medicine spoke on "The Role of Profundaplasty in Revascularization of the Lower Extremity" and O. Brewster Harrington of Memphis discussed "The Surgical Management of Coronary Artery Disease." Gilbert S. Campbell of the University Medical School moderated a panel program on "Cardiovascular Disease." Panelists were Melvin P. Judkins, G. Doyne Williams, O. Brewster Harrington, and Noel W. Lawson.

SCIENTIFIC EXHIBITS

Eighteen scientific exhibits were displayed during the meeting. The following three exhibits were selected as the most outstanding:

1. "Hand Surgery," The Orthopaedic Clinic, Little Rock

2. "Sinus Trouble, A Diagnosis Challenge to the Primary Physician," Robert N. McGrew, Little Rock
3. "Intra Ocular Lens," F. Hampton Roy, Little Rock

RELATED MEETINGS

The Alan Cazort Allergy Society of Arkansas held a luncheon meeting on Monday, April 26, with Michael Fly of New Orleans as guest speaker.

The Ophthalmology Section of the Arkansas Medical Society met on Tuesday, April 27, beginning at 9:00 A.M. Robert S. Hepler of Los Angeles presented a scientific program.

The Arkansas Chapter of the American College of Radiology began a scientific program at 9:00 A.M. on Tuesday, April 27. The scientific session covered "Nuclear Medicine," "Computer-

ized Axial Tomography," "Ultrasound," and a film panel. Melvin P. Judkins of Loma Linda University was guest speaker.

The Otolaryngology Section of the Society and the Arkansas Society of Anesthesiologists held a joint meeting, beginning at 10:00 A.M. on Tuesday, April 27. Speakers included James Suen, Nathan Austin, James Hawkins, Noel Lawson, Walter Guinee, and Robert N. McGrew.

The Arkansas Chapter of the American Academy of Pediatrics held a luncheon meeting on Tuesday, April 27, with scientific presentations

by Abraham Rudolph of San Francisco, W. T. Dungan, Florence Char, and J. B. Norton, Jr., all of the University of Arkansas College of Medicine.

The Neurosurgery Section held a luncheon meeting and business session on Tuesday, April 27.

The Arkansas State Urological Society met on Tuesday, April 27th, with Patrick Walsh of Johns Hopkins School of Medicine as guest speaker. A pyelogram conference followed the presentation by Dr. Walsh.

The Arkansas Academy of Family Physicians met on Tuesday, April 27, with Joseph Fisher of the University of South Carolina as guest speaker.

The Arkansas Orthopaedic Society met on Tuesday, April 27, with Turner Harris of Little Rock as guest speaker.

The Arkansas Society of Pathologists met on Tuesday, April 27. William W. Sheehan of Dallas presented the scientific program.

The Arkansas Chapter of the American College of Obstetrics and Gynecologists met on Tuesday, April 27, with Gary P. Wood of the University Medical School as lecturer.

The meeting announced for the Arkansas Society of Internal Medicine was cancelled.

The Arkansas Foundation for Medical Care held its annual business meeting on Wednesday, April 28, following adjournment of the convention of the Society. Max J. Blake, Review Director, reported on activities of the Professional Standards Review Organization (PSRO) program. Nathan Poff presented the report of the Nominating Committee, stating that only ten nominations had been received for the ten vacancies on the Board of Directors. There were no nominations from the floor and the ten nominees were elected. They are: John E. Bell, Searcy; John P. Burge, Lake Village; C. Lynn Harris, Hope; Morris M. Henry, Fayetteville; Fred C. Inman, Carlisle; J. B. Jameson, Jr., Camden; John B. Kirkley, Jonesboro; A. S. Koenig,

Fort Smith; Robert F. McCrary, Hot Springs; and William S. Orr, Jr., Little Rock.

MEMORIAL SERVICE

A joint Society-Auxiliary Memorial Service was held at 11:30 A.M. on Tuesday, April 27, in the hotel ballroom. The Society president, T. E. Townsend, presided. Invocation was by the Reverend James R. McLean, St. Luke's Episcopal Church, Hot Springs.

Dr. Townsend read the following names of deceased members of the Society:

H. H. Atkinson, Fordyce
George C. Coffey, Hot Springs
James O. Cooper, Little Rock
John G. Cullins, Little Rock
Norman N. Fein, Little Rock
Merle D. Fox, Searcy
Robert M. Franklin, Russellville
C. Lewis Hyatt, Monticello
Hoyt Kirkpatrick, Fort Smith
R. R. Kirkpatrick, Texarkana
Holden C. McCraney, Fort Smith
Ulysses S. Reed, Pine Bluff
Samuel V. Richmond, Little Rock
Louis U. Rushing, Texarkana
Winston K. Shorey, Little Rock
Carroll F. Shukers, II, DeQueen
William K. Smith, Hot Springs
John A. Stathakis, Little Rock
William J. Stocker, Little Rock
Fred B. Stone, Stuttgart
Deane D. Wallace, Little Rock
A. M. Washburn, Little Rock
Charles L. Weber, Magnolia
John H. Williams, Little Rock

Mrs. Curry Bradburn, president of the Woman's Auxiliary, read the following names of deceased members of the Auxiliary:

Mrs. O. W. Hope, Sheridan
Mrs. C. E. Oates, Little Rock
Mrs. F. O. Rogers, Little Rock
Mrs. R. M. Stormont, Little Rock
Mrs. B. L. Ware, Fort Smith
Mrs. Walter J. Hunt, Warren
Mrs. J. T. Robinson, Texarkana



The 100th Meeting Banquet



Mrs. Kemal Kutait, President-elect of the State Auxiliary, Dr. Kutait, and Mrs. Carl Wilson, President of the State Auxiliary for 1976-77, at the banquet featuring decorations in recognition of the 100th meeting of the Society.



T. E. Townsend, President for 1975-76, administers the oath of office of President of the Arkansas Medical Society to A. S. Koenig, Jr., of Fort Smith.



T. E. Townsend of Pine Bluff receives a plaque from the Society in appreciation of his services to the profession and to the state during his term as President of the Society.

MEMORIAL ADDRESS

G. ALLEN ROBINSON

Members of the Arkansas Medical Society and Friends:

It is an honor to have been asked to give the Memorial Address at the Centennial Session of the Arkansas Medical Society. This is a day of remembering with honor and affection the 24 Doctors and 7 Auxiliary members who have died in the past year. The youngest physician was 38 years old, and the oldest was 88. The total years in practice is 862 years. Their contribution to mankind and to immortality cannot easily be measured for the good that men do lives after them. The prestige of the physician has motivated many young men to enter the medical profession — a renewable resource. In their daily lives the Doctors have exemplified to a high degree our motto "To be worthy to serve the suffering."

"Gift of life too short;

O, beautiful gift of God, too brief at best."

"Labor with what zeal we will

Something still remaining undone

Something incomplete still

Waits the rising of the sun.

Till at length the burden seems

Greater than we can bear

Heavy as the weight of dreams

Pressing on us everywhere."

"Death is not extinguishing the light

It is putting out the lamp

Because the dawn has come.

The dawn is not distant

Nor is the night starless

Love is eternal

God is still God and

His faith shall not fail us.

Christ is eternal."

"Forget your heavy laden hearts

The body goes beneath the sod

That which we loved 'the soul' departs

To dwell with God."

"Dust thou art to dust returneth

Was not spoken of the soul."

Invocation was by Reverend McLean.



OTHER ACTIVITIES

SUNDAY EVENING RECEPTION

The Council of the Society hosted a reception on Sunday evening for all members of the Society and its guests. Retiring Executive Vice President Paul C. Schaefer and Mrs. Schaefer were guests of honor for the reception. Members of the Executive Committee and their wives joined the Schaefers in the receiving line. A silver anniversary theme was featured in decorations for the evening, in recognition of Mr. Schaefer's twenty-five years with the Medical Society.

MONDAY EVENING PARTY

On Monday evening, Blue Cross-Blue Shield of Arkansas hosted a cocktail party for the Society in the ballroom of the Arlington Hotel. Members of the staff of Blue Cross-Blue Shield were very gracious hosts. The Society appreciates the nice party which BC-BS sponsored.

FIFTY YEAR CLUB BREAKFAST

Members of the Fifty Year Club of the Arkansas Medical Society were honored at a breakfast meeting on Tuesday morning in the Jupiter Suite of the Arlington Hotel. Henry V. Kirby of Harrison presented a program on the Arkansas Medical Society centennial meeting and the history of medicine.

W. W. Chamberlain of Hot Springs was welcomed as a new member of the Fifty Year Club and received a membership lapel pin.

The Club elected Curtis W. Jones of Benton as its new president and Eva F. Dodge of Little Rock as secretary.

Present for the meeting were D. B. Stough of Hot Springs, D. L. Owens of Harrison, Eva F. Dodge of Little Rock, G. Allen Robinson of Harrison, C. W. Jones of Benton, R. H. Whitehead of DeWitt, Gaston Hebert of Hot Springs, Mac McLendon of Marianna, W. W. Chamberlain of Hot Springs, and the guest, Dr. Kirby.

G. Allen Robinson of Harrison served as secretary of the club for the past several years.

PRAYER BREAKFAST

The Committee on Medicine and Religion sponsored a Prayer Breakfast on Monday morning. A. Calvin Bradford of Fort Smith was the principal speaker. G. Thomas Jansen of Little

Rock served as Master of Ceremonies. The prelude and postlude were by J. R. Sellers of Arkadelphia. Invocation was by T. E. Townsend of Pine Bluff and the Scripture was read by Ken Lilly of Fort Smith. Mrs. Robert Sykes of Nashville sang "Eternal Life" and was accompanied by Dr. Sellers. Benediction was by C. R. Ellis of Malvern, Chairman of the Medicine and Religion Committee.

PAST PRESIDENTS' BREAKFAST

Past Presidents of the Arkansas Medical Society met for breakfast on Wednesday morning of the 100th Annual Session. Present were Ben Saltzman, Robert Watson, T. E. Townsend, Stanley Applegate, H. W. Thomas, C. R. Ellis, H. King Wade, Jr., Joe Verser, and Jack Kennedy.

GOLF TOURNAMENT

The Annual Golf Tournament in connection with the Society's meeting was held at Belvedere Country Club. There was a three-way tie for first prize. Winners were J. Malcolm Moore of Little Rock, Johnson J. Baker of Little Rock, and David L. Barclay of Little Rock. Gilbert Dean of Little Rock served as chairman of the tournament committee, assisted by W. G. Klugh of Hot Springs.

INAUGURAL BANQUET

President T. E. Townsend served as Master of Ceremonies for the President's Banquet on Tuesday evening of the convention. Invocation was by C. R. Ellis.

President Townsend introduced Mrs. Carl Wilson of Fort Smith, President of the State Auxiliary, Mrs. Kemal Kutait of Fort Smith, State Auxiliary President-elect, and Mrs. Elizabeth Doss of Fort Smith, President of the State Medical Assistants Society. He also gave recognition to D. L. Owens of Harrison who was attending his 56th consecutive meeting of the Arkansas Medical Society.

Dr. Townsend expressed appreciation to Asa Crow, Chairman of the Program Committee, for the excellent work he had done in arranging the 1976 convention program.

Dr. George K. Mitchell, President and Chief Executive Officer of Arkansas Blue Cross-Blue



Dr. and Mrs. C. R. Ellis of Malvern were among those attending the Inaugural Banquet on Tuesday evening.

Shield, was introduced and President Townsend expressed to him the Society's appreciation for the party hosted by Blue Cross-Blue Shield on Monday evening.

President Townsend expressed appreciation to Mrs. Louis Hundley for her work in handling decorations for the various activities of the convention. He noted that the decorations for the banquet included a birthday cake with one hundred candles in celebration of the Society's 100th Annual Meeting. Dr. Townsend paid tribute to Mrs. Hundley's late husband who served as Chairman of the Council and President of the Society and asked that Mrs. Hundley join the past presidents of the Society on the stage to light the candles on the birthday cake. Dr. Townsend lit the first candle. Each past president in attendance participated in lighting of the candles on the cake—T. Duel Brown, H. King Wade, Jr., Joe Verser, C. R. Ellis, Joe Norton, H. W. Thomas, Ross Fowler, Jack Kennedy, Stanley Applegate, Robert Watson, John Wood, and Ben N. Saltzman. Several of the past presidents paid tribute to other past presidents who have died. A. S. Koenig, the Society president for 1976-77, lit the last candle on the cake, as token representation of future presidents.

President Townsend acknowledged the August 1 retirement of the Executive Vice President for the past twenty-five years, Paul C. Schaefer. He asked Mr. Schaefer to approach the rostrum and presented to him a plaque expressing ap-

preciation for twenty-five years of leadership and service, and designating honorary life membership and executive vice president emeritus status for Mr. Schaefer. Dr. Townsend also presented to Mr. Schaefer a resolution of appreciation in scroll form. The resolution is as follows:

Resolution Of Appreciation

WHEREAS, Paul C. Schaefer retires from his position as Executive Vice President of the Arkansas Medical Society on August 1, 1976, and

WHEREAS, Mr. Schaefer has demonstrated admirable qualities of leadership, business acumen, and fiscal responsibility in his twenty-five years of exemplary service, and

WHEREAS, he has exemplified attributes of loyalty, integrity, and perserverance, and

WHEREAS, his dedication to the Society knows no restrictions—he has contributed of his time and talents diligently and generously to the various endeavors of the Society, and

WHEREAS, he has been a friend in the finest and fullest sense of the word, a man who in his daily life demanded the best of himself and by his example inspired this trait among his associates, and

WHEREAS, he has sought no accolades for a job well done, and

WHEREAS, his contribution to the growth and development of this Society will be long remembered,

NOW, THEREFORE, BE IT RESOLVED, that the Society gives its highest commendation to Mr. Schaefer for a quarter of a century of service as a valued co-worker, and

BE IT FURTHER RESOLVED that the Society express to him its respect, admiration, and appreciation for his steadfast devotion and outstanding contribution to Arkansas medicine, and

BE IT FURTHER RESOLVED that the Society confer on Mr. Schaefer an honorary life membership and the title of Executive Vice President Emeritus in recognition of our affection and esteem.

Arkansas Medical Society

April 1976

Dr. Koenig then advised Mr. Schaefer that the Council had voted to present to him as a retirement gift an automobile.

The Inaugural Banquet



Seated at the head table at the Inaugural Banquet on Tuesday evening were T. F. Townsend, President, and Mrs. Townsend, Mr. and Mrs. Paul C. Schaefer, and Dr. and Mrs. Elvin Shuffield (Secretary of the Society).



Mr. and Mrs. Schaefer were honored guests at the Tuesday Evening Banquet.



Others at the head table Tuesday evening were Dr. C. C. Long (Chairman of the Council) and Mrs. Long, Dr. Asa Crow (Program Chairman) and Mrs. Crow, and Dr. A. S. Koenig (President-elect) and Mrs. Koenig.



The family of President A. S. Koenig, Jr. (left to right) Catherine Ann Damann, Kenneth Damann, President Koenig, Amalie Koenig, A. Samuel Koenig, III, Gretchen Jacks, and Coe Koenig.

Mr. Schaefer responded to the presentation with the following remarks:

I am overwhelmed by the honors you have lavished on me during this meeting.

There is no way to express my gratitude. I hope that I am able to complete these brief farewell remarks without my emotions getting the better of me.

These last twenty-five years have been great years for me. It is customary at times such as this to say that "it's been a pleasure." It's been more than a pleasure. There have been moments of supreme gratification at a victory won — or an attack blunted. The confidence you have demonstrated in me time after time made the accomplishment of my tasks much easier. The knowledge that you never questioned my motives enhanced my willingness to act independently when necessary.

The men whom you elect to office are dedicated to improving the lot of the people of Arkansas by working through the Medical Society. They know that the acceptance of office or appointment will cost them personal expenses, weekends lost from home, night meetings and criticism from their less well-informed colleagues. They make hard decisions — many times having no alternatives than between several bad choices. They are the salt of the earth and the hope of private medicine.

I wanted to speak to you tonight so I'd have one last chance to say how good it has been to have the Auxiliary to work with these twenty-

five years — the Auxiliary, whose Past Presidents' Club voted my wife, Jean, an honorary Past President of the Auxiliary! Jean deserves her honorary position in the Auxiliary. Her cooperation, support and encouragement have been absolutely vital to my work with the Society. Not once in twenty-five years has she complained about my Sundays away from home, the many trips I had to make, or the way I had to leave her to her own devices on the trips she made with me.

Twenty-five years! It seems not so long ago that the office was in one room — with a fan whirring in one corner of the floor. It was not so long ago that, because I didn't feel that we should spend money to put drapes on the office windows, Leah Richmond volunteered to make the drapes if the Society would buy the material.

We have come a long way since then.

I turn my position over to Dr. Long on August 1st confident that he will continue the progress we have made. He will change the emphasis on old programs and introduce new ideas that will be refreshing and invigorating to the Society.

I know that he will be ably and enthusiastically helped by Leah Richmond who has made me look good all these years, and by the rest of the staff who have given me their cheerful support. Next to Leah's twenty-three years, Dorothy Thompson is next with ten years, Peggie Branham nine years, John McIntosh four years, Becky Risner three years, and Nita Barnes four months. This is a fine group of people — every one of them capable of handling whatever promotion is next to come to them.

When I was in high school, we had a school assembly once a week during which a speaker from outside the school would talk to us. One talk I remember — by Reverend Leeper, a Presbyterian minister. The title of his talk was "Shine Your Heel." The idea was that while you are on a job, you present yourself in the best possible manner. You are keeping the toes of your shoes shiny and making a good appearance. But a lot of people neglect to do a thorough job. They forget to shine their heel — and when they walk away from you, you can see their dirty, unkempt heel. One should do a job so well that when he leaves it, it will still

look good. I hope that my work has been good enough that when I walk away, the job we have done will still look good. I have done my very best.

President Townsend then asked Mrs. Schaefer to come to the rostrum and presented to her a bouquet of twenty-five red roses in appreciation of her support over the years.

Dr. Townsend then thanked the members of the Society for the privilege of having served as president during the centennial year, indicating that it was one of the high points of his life.

Dr. Townsend administered the oath of office of President of the Arkansas Medical Society to A. S. Koenig, Jr., and presented the gavel to him.

As his first official duty, Dr. Koenig presented a plaque of appreciation to Dr. Townsend for his services to the state and to the profession during his term as Society president.

Dr. Koenig introduced members of his family who were present — his wife Coe; his son, A. Samuel Koenig, III, M.D., of Fort Smith; his daughter Catherine Ann and her husband, Kenneth E. Damann; and his daughter Gretchen Jacks.

Dr. Koenig addressed the membership as follows:

INAUGURAL ADDRESS

A. S. Koenig, M.D., President

1976-77

Arkansas Medical Society

Members of the Arkansas Medical Society, guests, ladies and gentlemen.

Last year in Dr. Townsend's inaugural address, he reviewed the first hundred years of the Arkansas Medical Society. Certainly they were years of growth and development with many achievements for which our Society can be proud. Tonight, however, as we enter our second century, I would like to pause for a moment to assess where we are in today's environment and perhaps take a peek into the years immediately ahead of us.

The image of the physician of a century ago is probably best envisioned in the well-known painting which depicts the solicitous physician, sitting with a pensive expression on his face at the bedside of the sick child whose anguished parents are standing in the background. Our



Dr. and Mrs. A. S. Koenig, Jr., on the evening of the Inaugural Banquet.

relationship with our patients then was considerably different than now because at that time we had little else to offer but our sympathetic attitude, kindness and the few drugs in our bag. We saw the patient in the home because transportation for him was either not available or too difficult for a sick person to attempt. A hospital had little more to offer than the home and in many instances was only utilized for extremely grave illnesses. When time for payment of a physician's bill arrived, the patient usually felt a great obligation out of a sense of gratitude for the obvious sacrifice and the kind ministrations of the doctor. If he had no money, proffered payment in livestock, produce or personal services was gratefully received and when this was not forthcoming, the doctor usually did not press the issue. The family physician was friend, confident, confessor and a pillar of security on whom his patients leaned.

Where are we now? Although there are many of us who still strive to preserve the type of relationship I have just described, the mushrooming of medical specialties and the fragmentation of medical care has produced, on the whole, a more impersonal relationship between doctor and patient and both of us would like to find some way to bridge the gap that has grown between us. Because we can treat a patient more efficiently in our office or hospital, where diagnostic and therapeutic tools are available, he feels we are less interested in him. Because increased de-



Mrs. Ken Lilly of Fort Smith and Dr. and Mrs. Jerry Mann of Arkadelphia at a reception on Tuesday evening.



Members of the Society's headquarters staff at the Inaugural Banquet on Tuesday evening. Left to right, they are Nita Barnes, Becky Risner, Leah Richmond, John McIntosh, Peggie Branham, and Dorothy Thompson.

mands on our time no longer permit time for visiting during a professional call, we are brushing him off and are impersonal. Because opportunities for consultation and improved facilities entice physicians to urban centers, he thinks we are too selfish to live in a small community. Because the cost of equipment, personnel, housing, and all the other expenses of our practice and living require increases in charges, we are avaricious.

Today when time for payment comes, the patient is only indirectly responsible because funds are available from all sorts of third party sources, not the least of which is the Government. He no longer has the sense of personal obligation that his predecessors had. The availability of varieties of health insurance, Federal and State subsidies leads him to believe that our services are his "right" and we should look to these guarantors for payment.

In the last twenty years, the development of space-age medical tools which have led to the expanding spectrum of medical specialties and the seduction of numerous young physicians away from primary care medicine, have made it increasingly difficult for patients to find a family doctor. By the time he is shunted from one consultant to another, he is confused, frustrated and dissatisfied. His frustration is further compounded by the astronomical increase in demand for medical services generated by Medicare and Medicaid which makes his doctor more remote than ever. Waiting periods of from six weeks to two months to see a physician are not unusual. A new family, moving into a community, often-times has considerable difficulty finding a phy-

sician because many of us are so busy that we are not accepting any new patients.

Is it any wonder that the anguished patient reaches out for someone to do something to relieve his dilemma? The sensitive ears of government have heard him; politicians find it a popular cause; and so equal access to quality medical care becomes a "right" of all the people. We built hospitals with Hill-Burton funds; we provided Medicare and Medicaid for the elderly and the indigent; we have federal subsidies for medical education and now we hear about National Health Insurance with the spending of additional billions of dollars in an inflationary, deficit ridden economy.

The picture of the kindly physician at the bedside of the child has almost completely evaporated despite the efforts of many of us to keep it alive. Because our services are now a basic right rather than the ministrations of a willing friend, we need to be told where we shall practice, what we shall practice, and how much we may charge. Believe it or not, we are a public utility!

Although the Medicare law, implemented in 1966, stated that there would be no interference with the customary patterns of medical practice, directives subsequently issued by the Department of Health, Education and Welfare have tended to become more and more restrictive. I recall for you such things as preadmission certification, maximum allowable cost for drugs and utilization review. Although these directives have been justified by what government calls quality medical care, their net effect has been directed toward cost containment. Government

is now looking for a scapegoat for their miscalculations. What has occurred was long ago predicted by the American Medical Association. Because of the greatly augmented burden on the American taxpayer and shrinking benefits to the aged and indigent, we hear more and more about "overcharging" by doctors and other providers. We are vilified by such irresponsible public statement by Government officials as that of the House Subcommittee last February indicating that 17% of all surgery in the United States is allegedly unjustified and unnecessary.

The public attitude toward medicine today is probably largely responsible for the tremendous increase in malpractice claims. Many of us find ourselves in an uninsurable situation. You are all aware of the situation here in Arkansas. Despite the opposition of the Arkansas trial lawyers, the Insurance Commissioner and the Governor, the Legislature overwhelmingly approved a constitutional amendment to the Workmen's Compensation Law to provide some needed relief. The amendment will be voted on at the General Election in November and each one of us has a great responsibility to see that the true message is given to the people of this state. When the Arkansas Medical Society calls upon each of you to assist in this great effort this year, I hope each of you will respond enthusiastically.

The sleeping Federal giant in our midst, which is directed primarily at cost containment and plants the first seeds of outright professional control, is Public Law 93-641, the National Health Planning and Resources Development Act, enacted by the 93rd Congress in 1974. You might be interested in some of the quotations from the preamble entitled "Findings and Purpose." I quote:

"Section 2(a) The Congress makes the following findings:

1. The achievement of equal access to quality health care, at a reasonable cost, is a priority of the Federal government.
2. The massive infusion of Federal funds into the existing health care system has contributed to inflationary increases in the cost of health care and failed to produce an adequate supply or distribution of health resources, and consequently has not made possible equal access for everyone to such resources.



Retiring Executive Vice President receives a plaque from President T. E. Townsend.

3. The many and increasing responses to these problems by the public sector (Federal, state and local) and the private sector have not resulted in a comprehensive, rational approach to the present —
 - A. lack of uniformly effective methods of delivering health care,
 - B. maldistribution of health care facilities and manpower and,
 - C. increasing costs of health care.
4. Increases in the cost of health care, particularly of hospital stays, have been uncontrollable and inflationary, and there are presently inadequate incentives for the use of appropriate alternative levels of health care, and for the substitution of ambulatory care for inpatient hospital care.
5. Since the health care provider is one of the most important participants in any health care delivery system, health policy must address the legitimate needs and concerns of the provider if it is to achieve meaningful results; and, thus, it is imperative that the provider be encouraged to play an active role in developing health policy at all levels."

This last statement is somewhat paradoxical because under the law the policy-making bodies, at all levels, are consumer oriented. The State Health Planning and Development Agency must be a governmental entity (in our case the State Health Department) with a Director appointed by the Governor. He is to be advised by a State



Dr. and Mrs. D. L. Owens of Harrison at the Inaugural Banquet. Dr. Owens has the longest record of continuous attendance at Society meetings.

Health Coordinating Council which must be composed of a majority of consumers. Forty percent of the total membership is appointed by the Governor directly and sixty percent of the membership is selected by the Governor from among nominees of the regional Health Service Agencies. At least one-third of the providers on the Council are to be direct providers such as physicians, nursing home and hospital administrators and other direct care paramedical personnel. The remaining two-thirds of the provider members may be indirect providers such as health insurers, pharmaceutical manufacturers or researchers. The present State Health Coordinating Council of Arkansas has a membership of 35 of whom five are physicians. One of these represents the Veterans Administration, as required by law; two are educators and only two are practicing physicians. Provider positions are also occupied by a chiropractor and an optometrist.

The law states that there are certain priorities to be considered by Federal, State and Area agencies. Among these are, and again I quote:

- "1. The provision of primary care services for medically under-served populations, especially those which are located in rural and economically depressed areas.
2. The development of multi-institutional systems for coordinating or consolidation of institutional health services (including obstetric, pediatric, emergency, medical, intensive and coronary care, and radiation therapy services).



Mr. and Mrs. Paul C. Schaefer were guests of honor at the Council reception on Sunday evening in recognition of Mr. Schaefer's 25 years of service.

3. The development of medical group practices (especially those whose services are appropriately coordinated or integrated with institutional health services), health maintenance organizations, and other organized systems for the provision of health care.
4. The training and increased utilization of physician assistants, especially nurse clinicians.
5. The development of multi-institutional arrangements for the sharing of support services necessary to all health service institutions.
6. The adoption of uniform cost accounting, simplified reimbursement and utilization reporting systems and improved management procedures for health service institutions."

Do you appreciate the implications of these priorities?

Each state is divided into Health Systems Areas — in our case, four — each of which is administered by a Health Systems Agency which is funded by the Federal Government. An HSA may be a non-profit corporation or a Government entity. It is administered by a Board of Directors consisting of a majority of consumers. Nineteen of our members are on the proposed Board of Directors of the four regional HSA's. The HSA has no regulatory functions but must



The Council of the Arkansas Medical Society, 1976-1977 (seated, left to right) Councilors Robert McCrary, Curtis Clark, William S. Orr, Jr., Treasurer Kenneth R. Duzan, Chairman of the Council John P. Burge, President A. S. Koenig, Jr., President-elect W. Payton Kolb, Secretary Elvin Shuffield, Councilors John B. Kirkley, Allie Andrews, John E. Bell, (standing, left to right) First Vice President Mahlon Maris, Councilors W. Ray Jouett, Paul Gray, J. B. Jameson, Lynn Harris, Fred Inman, Rhys Williams, Charles F. Wilkins, L. J. Pat Bell, Kemal Kutait, Speaker of the House Amail Chudy, Councilors Eldon Fairley and Raymond Irwin. Not present were Councilors John H. Moore and Morris M. Henry.

periodically review and comment on the appropriateness of all institutional health services in the area, reporting to the State Agency. It will annually prepare and submit to the State Agency a Health Systems Plan and an Annual Implementation Plan.

At an AMA Leadership Conference in January of this year, AMA Executive Vice President, Dr. James Sammons, termed Public Law 93-641 "the single, most potentially destructive piece of medical legislation ever enacted by Congress." The AMA intends to file suit against the Government challenging the constitutionality of the act. In the meantime, implementation of the law is proceeding. Here in Arkansas, grant applications for each of the Health Systems Agencies have been filed. Staff personnel are being selected. If funded, they will become operational by July 1 of this year.

Much as we would yearn for the "good old days," we are caught up in the realities of our time. It is no longer just desirable but now absolutely mandatory that we take a vital interest in and maintain constant vigilance of those events which will affect our professional activities. Despite the stated findings of the Government, I disagree that its solutions are entirely in the best interest of the people of this country. I charge those of our members who are involved with the implementation of the Ar-

kansas program under the National Health Planning and Resources Development Act to be faithful in your participation and exert your influence. If you are disinterested or unable to do so, inform us so that you may be replaced by someone else.

In closing, I would like to quote again from Dr. Townsend's inaugural address last year. "In 1935, Dr. F. O. Mabary stated, 'Our most pernicious potential menace today is a socialistic trend towards Government subsidizing doctors.'" How true! As your President, I pledge my time, my loyalty, and all my efforts to the welfare of the members of the Arkansas Medical Society and their freedom to care for their patients in a manner of their own choosing.

ATTENDANCE

100th Annual Meeting

Physicians	471
Medical Students	14
Medical Assistants, Nurses, and Technicians	13
Scientific Exhibitors	11
Commercial Exhibitors	108
Auxiliary	14
Other Guests	22
	653
Auxiliary Registration	101

COMMITTEES – ARKANSAS MEDICAL SOCIETY – 1976-77

	Term Expires		Term Expires
COMMITTEE ON CANCER CONTROL		SUB-COMMITTEE ON MATERNAL AND CHILD WELFARE	
David Barclay, 1301 West Markham, Little Rock 72201	1977	Joseph L. Rosenzweig, 236 Woodbine, Hot Springs 71901	1977
John Broadwater, 1500 Dodson, Fort Smith 72901	1977	E. Stewart Allen, 1100 North University, Little Rock 72207	1977
Gilbert D. Jay, III, 200 South Rhodes, West Memphis 72301	1978	Virgil Hayden, 1706 West 42nd, Pine Bluff 71601	1978
Herbert B. Wren, P. O. Box 1409, Texarkana 75501	1979	Charles Floyd, 617 South 16th, Fort Smith 72901 – <i>CHAIRMAN</i>	1979
Charles R. Henry, 500 South University, Little Rock 72205 – <i>CHAIRMAN</i>	1979	SUB-COMMITTEE ON TUBERCULOSIS	
COMMITTEE ON MEDICAL LEGISLATION		William A. Hudson, P. O. Box 237, Jasper 72641	1977
Morriss M. Henry, P. O. Box 1767, Fayetteville 72701	1977	Donald Miller, 1515 West 42nd, Pine Bluff 71601 – <i>CHAIRMAN</i>	1977
Neil E. Compton, VA Hospital, Fayetteville 72701	1977	Jim Citty, 2900 Hawkins Drive, Searcy 72143	1978
Donald Browning, 409 North University, Little Rock 72205	1977	Lawrence C. Price, P. O. Box 3006, Fort Smith 72901	1978
Elvin Shuffield, 110 Doctors Park Building, Little Rock 72205 – <i>CHAIRMAN</i>	1978	L. J. Pat Bell, 626 Poplar, Helena 72342	1979
Joe Verser, P. O. Box 106, Harrisburg 72432	1978	COMMITTEE ON AGING	
George Warren, P. O. Box W, Smackover 71762	1978	John F. Guenther, 126 West 6th, Mountain Home 72653	1977
A. Samuel Koenig, III, 922 Lexington, Fort Smith 72901	1979	Friedman Sisco, P. O. Box 65, Springdale 72764	1977
Robert Watson, 750 Medical Towers Building, Little Rock 72205	1979	Woodbridge Morris, 5326 West Markham, Little Rock 72205	1978
SUB-COMMITTEE ON NATIONAL LEGISLATION		Gordon P. Oates, 701 West Markham, Little Rock 72201 – <i>CHAIRMAN</i>	1979
Jacob P. Ellis, 714 West Faulkner, El Dorado 71730	1977	Bill D. Stewart, 415 North University, Little Rock 72205	1979
Dale Alford, 5700 West Markham, Little Rock 72205	1977	Thomas E. Burrow, 903 West Grand, Hot Springs 71901	1979
Jerry Mann, 416 Main, Arkadelphia 71923	1978	SUB-COMMITTEE ON PHYSICAL FITNESS AND SCHOOL HEALTH	
James M. Kolb, Jr., Route 3, Box 12-A, Russellville 72801	1978	Kemal Kutait, 1120 Lexington, Fort Smith 72901	1977
William S. Orr, Jr., 500 South University, Little Rock 72205 – <i>CHAIRMAN</i>	1979	Francis M. Henderson, 1515 West 42nd, Pine Bluff 71601	1977
Morriss M. Henry, P. O. Box 1767, Fayetteville 72701	1979	Francis Buchanan, 500 South University, Little Rock 72205	1978
COMMITTEE ON PUBLIC HEALTH		Coy C. Kaylor, 1673 North College, Fayetteville 72701	1979
Edgar J. Easley, 4815 West Markham, Little Rock 72205	1977	James Sanders, 505 East Matthews, Jonesboro 72401	1979
Milton D. Dencke, P. O. Box 607, West Memphis 72301	1977	Ralph Ingram, 1120 Lexington, Fort Smith 72901	1979
L. A. Whittaker, 708 Lexington, Fort Smith 72901	1977	SUB-COMMITTEE ON INDUSTRIAL HEALTH	
Wade Burnside, 207 East Dickson, Fayetteville 72701	1978	Noel Ferguson, 651 North Spring, Harrison 72601	1977
Wilbur Lawson, 207 East Dickson, Fayetteville 72701	1978	Gwyn Atnip, 1111 West 15th, Pine Bluff 71601	1977
Ben N. Saltzman, 4301 West Markham, Little Rock 72201 – <i>CHAIRMAN</i>	1979	I. Leighton Millard, P. O. Box 5270, Little Rock 72205	1978
Bryant S. Swindoll, 4815 West Markham, Little Rock 72205	1979	Howard Schwander, 9600 West 12th, Little Rock 72205	1978

PROCEEDINGS

	Term Expires		Term Expires
Paul G. Henley, 700 West Faulkner, El Dorado 71730	1979	Jean Gladden, P. O. Box 1118, Harrison 72601	1977
Robert H. Janes, 1500 Dodson, Fort Smith 72901 — <i>CHAIRMAN</i>	1979	Robert Watson, 750 Medical Towers Building, Little Rock 72205	1978
COMMITTEE ON MENTAL HEALTH		Thomas M. Durham, Jr., 505 West Grand, Hot Springs 71901	1978
Henry Hearnberger, 4313 West Markham, Little Rock 72205	1977	John P. Wood, 907 Mena, Mena 71953 — <i>CHAIRMAN</i>	1979
Amal Chudy, 1801 Maple, North Little Rock 72114	1977	H. King Wade, Jr., 231 Central, Hot Springs 71901	1979
Robert G. Carnahan, 4313 West Markham, Little Rock 72205	1978	COMMITTEE ON MEDICAL EDUCATION	
W. Payton Kolb, 230 Medical Towers Building, Little Rock 72205 — <i>CHAIRMAN</i>	1978	Raymond V. Biondo, P. O. Box 921, North Little Rock 72115, Dist. 8	1977
William Joseph James, 2500 Rike Drive, Pine Bluff 71601	1978	Robert H. White, 1004 Dyer, Malvern 72104, Dist. 7	1977
William O. Young, 135 Evergreen Place, Little Rock 72207	1979	W. M. Wells, Fourth and Spring, Heber Springs 72543, Dist. 2	1977
Joe Dorzab, 924 Adelaide, Fort Smith 72901	1979	T. E. Townsend, 1420 West 43rd, Pine Bluff 71601, Dist. 4 — <i>CHAIRMAN</i>	1977
Albert Clowney, 312 Thompson, El Dorado 71730	1979	William G. Lockhart, 1500 Dodson, Fort Smith 72901, Dist. 10	1978
IMMUNIZATION SUB-COMMITTEE		Robert D. Dickins, Jr., 750 Medical Towers, Little Rock 72205, Dist. 8	1978
Guy U. Robinson, 207 South Elm, Dumas 71639	1977	C. Lynn Harris, P. O. Box 550, Hope 71801, Dist. 6	1978
Horace L. Green, 1420 West 43rd, Pine Bluff 71601	1978	Wayne G. Elliott, 443 West Oak, El Dorado 71730, Dist. 5	1979
Mahlon Maris, P. O. Box 759, Harrison 72601	1978	Lee Parker, Jr., 241 West Spring, Fayetteville 72701, Dist. 9	1979
Betty A. Lowe, 804 Wolfe, Little Rock 72201	1978	James W. Sanders, 505 East Matthews, Jonesboro 72401, Dist. 1	1979
Calvin Austin, 1210 DeQueen, Mena 71953	1978	Bernard Capes, P. O. Box 2398, West Helena 72390, Dist. 3	1979
Roger Bost, 4301 West Markham, Little Rock 72201	1979	COMMITTEE ON HOSPITALS	
Charles E. Kemp, 505 East Matthews, Jonesboro 72401 — <i>CHAIRMAN</i>	1979	George W. Warren, P. O. Box W, Smackover 71762	1977
SUB-COMMITTEE ON TRAFFIC SAFETY		Raymond A. Irwin, Jr., 1421 Cherry, Pine Bluff 71601	1977
Guy U. Robinson, 207 South Elm, Dumas 71639	1977	Paul N. Means, 3 Hearthside Drive, Little Rock 72207	1978
James G. Stuckey, Jr., 500 South University, Little Rock 72205	1978	Peter J. Irwin, 1500 Dodson, Fort Smith 72901	1978
H. Austin Grimes, P. O. Box 5270, Little Rock 72205	1978	Art B. Martin, 1500 Dodson, Fort Smith 72901 — <i>CHAIRMAN</i>	1979
Donald L. Duncan, P. O. Box 778, Texarkana 75501	1978	George K. Mitchell, P. O. Box 2181, Little Rock 72203	1979
Lonise M. Henry, P. O. Box 1267, Fayetteville 72701	1978	COMMITTEE ON PUBLIC RELATIONS	
Carl L. Williams, 522 South 16th, Fort Smith 72901 — <i>CHAIRMAN</i>	1979	Joseph A. Norton, 8570 Cantrell Road, Little Rock 72207	1977
John P. Burge, Lake Village Clinic, Lake Village 71653	1979	Nathan L. Poff, 401 West Searcy, Heber Springs 72543	1977
SUB-COMMITTEE ON LIAISON WITH VOCATIONAL REHABILITATION		A. C. Bradford, Waldron Road at Ellsworth, Fort Smith 72901	1978
Robert Miller, 616 Elm Street, Helena 72342	1977	W. Ray Jouett, 750 Medical Towers Building, Little Rock 72205 — <i>CHAIRMAN</i>	1978
Ashley S. Ross, 500 South University, Little Rock 72205	1977	G. Thomas Jansen, 500 South University, Little Rock 72205	1979
		Milton Deneke, P. O. Box 607, West Memphis 72301	1979

	Term Expires		Term Expires
SUB-COMMITTEE ON LIAISON WITH THE AUXILIARY		J. Travis Crews, 500 South University, Little Rock 72205	1979
Carl Wilson, 1500 Dodson, Fort Smith 72901 — <i>CHAIRMAN</i>	1977	James R. Weber, P. O. Box 188, Jacksonville 72076	1979
John Wood, 907 Mena, Mena 71953	1977	COMMITTEE ON MEDICINE AND RELIGION	
Kemal Kutait, 1120 Lexington, Fort Smith 72901	1977	Fred O. Henker, 4301 West Markham, Little Rock 72201	1977
W. Payton Kolb, 230 Medical Towers Building, Little Rock 72205	1977	W. Payton Kolb, 230 Medical Towers Building, Little Rock 72205	1977
SUB-COMMITTEE ON STATE HEALTH AND MEDICAL RESOURCES FOR CIVIL DEFENSE		C. Randolph Ellis, 1004 South Main, Malvern 72104 — <i>CHAIRMAN</i>	1978
James T. Blackmon, 1008 Pine, Arkadelphia 71923 — <i>CHAIRMAN</i>	1977	Kenneth Lilly, 1120 Lexington, Fort Smith 72901	1978
Monroe D. McClain, 1119 North Hughes, Little Rock 72207	1977	John W. Trieschmann, 236 Woodbine, Hot Springs 71901	1979
Robert L. Kerr, P. O. Box 432, Mountain Home 72653	1977	Robert R. Sykes, P. O. Box 594, Nashville 71852	1979
James T. Rhyne, 1420 West 43rd, Pine Bluff 71601	1977	COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION	
Alvin Strauss, Jr., 1026 Donaghey Building, Little Rock 72201	1978	Robert F. McCrary, 505 West Grand, Hot Springs 71901	1977
Hugh R. Edwards, 601 Woodruff, Searcy 72143	1979	Frank M. Burton, 101 Whittington, Hot Springs 71901	1977
ADVISORY COMMITTEE TO THE MEDICAL ASSISTANTS SOCIETY		George H. Collier, Jr., 130 South 14th, Paragould 72450	1977
W. Y. Springer, 901 West Grand, Hot Springs 71901	1977	Charles A. Taylor, 181 South Broad, Batesville 72501	1977
L. K. Austin, 500 South University, Little Rock 72205	1977	Asa Crow, #1 Medical Drive, Paragould 72450	1978
Wayne G. Elliott, 443 West Oak, El Dorado 71730	1977	Joseph Robinette, 1722 Doctors Drive, Pine Bluff 71601	1978
G. Grimsley Graham, 990 Medical Towers, Little Rock 72205 — <i>CHAIRMAN</i>	1978	G. Thomas Jansen, 500 South University, Little Rock 72205	1978
William Robert Nixon, 709 West 6th, Pine Bluff 71601	1978	Kenneth Lilly, 1120 Lexington, Fort Smith 72901 — <i>CHAIRMAN</i>	1979
Annette Landrum, 500 Lexington, Fort Smith 72901	1979	William F. Turner, 1500 Dodson, Fort Smith 72901	1979
COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS		COUNCIL COMMITTEES	
Chalmers S. Pool, VA Hospital, North Little Rock 72114	1977	PHYSICIAN-NURSE JOINT PRACTICE COMMITTEE	
Jack W. Kennedy, 901 Prospect, Hot Springs 71901	1977	Robert Watson, 750 Medical Towers Building, Little Rock 72205 — <i>CHAIRMAN</i>	
John W. Dorman, P. O. Box 689, Springdale 72764	1977	A. T. Gillespie, 500 South University, Little Rock 72205	
Warren Murry, 1749 North College, Fayetteville 72701 — <i>CHAIRMAN</i>	1977	Charles E. Tommey, 412 North Washington, El Dorado 71730	
Joseph W. Ledbetter, 804 South Church, Jonesboro 72401	1979	Jerry Holton, 500 South University, Little Rock 72205	
COMMITTEE ON INSURANCE		Guy R. Farris, 6213 Lee Avenue, Little Rock 72205	
Charles F. Wilkins, 3105 West Main Place, Russellville 72801	1977	COMMITTEE ON CONSTITUTIONAL REVISION	
R. Jerry Mann, 416 Main, Arkadelphia 71923	1977	A. S. Koenig, Jr., 922 Lexington, Fort Smith 72901 — <i>CHAIRMAN</i>	
J. Harry Hayes, Jr., 500 South University, Little Rock 72205	1978	William S. Orr, 500 South University, Little Rock 72205	
Banks Blackwell, 1400 West 43rd, Pine Bluff 71601 — <i>CHAIRMAN</i>	1978	Nathan Poff, 401 West Searcy, Heber Springs 72543	
		Warren Murry, 1749 North College, Fayetteville 72701	

BUDGET COMMITTEE

C. C. Long, P. O. Box 1208,
Fort Smith 72901
H. W. Thomas, 105 North Freeman,
Dermott 71638 — *CHAIRMAN*
K. R. Duzan, 443 West Oak,
El Dorado 71730

LIAISON COMMITTEE WITH
STATE WELFARE DEPARTMENT
(Composed of Executive Committee)

COMMITTEE ON PHARMACY

Kelsy Caplinger, P. O. Box 5675,
Little Rock 72205 — *CHAIRMAN*
Boyce W. West, P. O. Box 220,
Clarksville 72830

MEDICAL SCHOOL COMMITTEE

Asa A. Crow, #1 Medical Drive,
Paragould 72450 — *CHAIRMAN*
Kemal Kutait, 1120 Lexington,
Fort Smith 72901
Boyce West, P. O. Box 220,
Clarksville 72830
James L. Gardner, 125 Greenwood,
Hot Springs 71901
Max G. Cheney, 353 East 8th,
Mountain Home 72653

PRIVATE INSURANCE REVIEW COMMITTEE

Robert McCrary, 505 West Grand,
Hot Springs 71901 — *CHAIRMAN*

Rhys Williams, P. O. Box 1118,
Harrison 72601
Austin Grimes, P. O. Box 5270,
Little Rock 72205
W. Sexton Lewis, 700 Medical Towers Building,
Little Rock 72205
Kemal Kutait, 1120 Lexington,
Fort Smith 72901

MEDICAID UNDERUTILIZATION COMMITTEE

Art Martin, 1500 Dodson,
Fort Smith 72901 — *CHAIRMAN*
Milton Deneke, P. O. Box 607,
West Memphis 72301
Joseph L. Rosenzweig, P. O. Box 2158,
Hot Springs 71901
James Mashburn, 207 East Dickson,
Fayetteville 72701
Thomas Honeycutt, 4124 West 11th,
Little Rock 72204

HOUSE COMMITTEE

AD HOC COMMITTEE ON REPEAL OF PSRO

Ken Lilly, 1120 Lexington,
Fort Smith 72901 — *CHAIRMAN*
George Roberson, 1708 Doctors Drive,
Pine Bluff 71601
Noel Ferguson, 651 North Spring
Harrison 72601
Berry L. Moore, 615 West Grove,
El Dorado 71730



MEDICAL SERVICES REVIEW COMMITTEE

Term Expires	Committee Members (Name and Address)	Specialty Represented	Term Expires	Committee Members (Name and Address)	Specialty Represented
April 30			April 30		
1978	C. Lynn Harris, P. O. Box 550, Hope 71801	Fam. Pr.	1979	Wayne B. Glenn, 500 South University, Little Rock 72205	Anes.
1979	Kenneth E. Lilly, 1120 Lexington, Fort Smith 72901	Fam. Pr.	1977	Charles M. Davis, 1707 West 42nd Avenue, Pine Bluff 71601	Derm.
1979	Bruce E. Schratz, 1801 Maple, North Little Rock 72114	Fam. Pr.	1977	Philip J. Deer, Jr., 601 Scott, Little Rock 72201	Oph.
1978	E. Clinton Texter, 4301 West Markham, Little Rock 72201	Int. Med.	1977	Ellery Gay, Jr., Medical Towers Building, Little Rock 72205	Oto.
1979	Van Smith, P. O. Box 1077, Harrison 72601	Int. Med.	1978	W. P. Phillips, P. O. Box 3507, Fort Smith 72901	Ob-Gyn
1978	James R. Walt, 500 South University, Little Rock 72205	Surgery	1979	Robert Watson, 750 Medical Towers Bldg., Little Rock 72205	Neurosurgery
1977	Donald L. Duncan, P. O. Box 778, Texarkana 75501	Surgery	1979	W. Payton Kolb, 230 Medical Towers Bldg., Little Rock 72205	Psychiatry
1979	Raymond A. Irwin, Jr., 1421 Cherry, Pine Bluff 71601	Surgery	1978	Robert Glenn, 516 Pershing, North Little Rock 72214	Pediatrics
1977	Edwin Whiteside, P. O. Box 1208, Fayetteville 72701	Allergy	1977	Robert E. Elliott, 1400 West Pleasure, Searcy 72143	Radiology

Term Expires	Committee Members (Name and Address)	Specialty Represented
April 30		
1978	A. S. Koenig, Jr., 922 Lexington, Fort Smith 72901	Pathology
1978	Charles McKenzie, 802 North University, Little Rock 72205	Orthopedics
1979	R. Teryl Brooks, Jr., 1604 West 42nd Avenue, Pine Bluff 71601	Urology
—	Charles F. Wilkins, Jr., 3105 West Main Place, Russellville 72801	(Chairman)
—	A. S. Koenig, Jr., 922 Lexington, Fort Smith 72901	(President)
—	W. Payton Kolb, 230 Medical Towers Bldg., Little Rock 72205	(President-elect)
—	Elvin Shuffield, 110 Doctors Park Building, Little Rock 72205	(Secretary)
—	John P. Burge, Lake Village Clinic, Lake Village 71653	(Council Chairman)

Sub-Committee of Sub-Specialties
(Representatives on call to meet with Committee as needed when claims in specialty field are considered)

Term Expires	Sub-Committee Representative (Name and Address)	Sub-Specialty Represented
April 30		
*	Carl L. Williams, 522 South 16th, Fort Smith 72901	Thoracic Surgery
*	T. J. Smith, 409 North University, Little Rock 72205	Gastroenterology
*	Thomas H. Allen, 413 North University, Little Rock 72205	Plastic Surgery
*	John C. Schultz, 10001 Lile Drive, Little Rock 72205	Pulmonary Diseases
*	Kelsy Caplinger, III, P. O. Box 5675, Little Rock 72205	Pediatric Allergy
*	W. R. Johnson, Jr., D.D.S., 404 Medical Arts Building, Hot Springs 71901	Oral Surgery

*Terms to be designated by Medical Services Review Committee.

**PROFESSIONAL RELATIONS COMMITTEE
ARKANSAS MEDICAL SOCIETY**

District	Name of Committee Member	Address
1	F. E. Utley, M.D. B. P. Raney, M.D. T. Murray Ferguson, M.D.	515 North Sixth, Blytheville 72315 403 East Matthews, Jonesboro 72401 200 South Rhodes, West Memphis 72301
2	C. W. Jackson, M.D. Jim Lytle, M.D. Charles F. Wells, M.D.	P. O. Box C, Judsonia 72081 181 South Broad, Batesville 72501 601 South Moose, Morrilton 72110
3	John M. Hestir, M.D. Carl E. Northcutt, M.D. Dwight W. Gray, M.D.	220 West Gibson, DeWitt 72042 Route 1, Box 21-D, Stuttgart 72160 110 West Chestnut, Marianna 72360
4	Howard Harris, M.D. L. R. Turney, M.D. George Roberson, M.D.	207 South Elm, Dumas 71639 101 South Third, McGehee 71654 1708 Doctors Drive, Pine Bluff 71601
5	C. E. Tommey, M.D. L. V. Ozment, M.D. Joe F. Rushton, M.D.	412 North Washington, El Dorado 71730 353 Cash Road, Camden 71701 219 North Washington, Magnolia 71753
6	Donald Duncan, M.D. James G. Martindale, M.D. James Armstrong, M.D.	P. O. Box 778, Texarkana 75501 116 South Main, Hope 71801 P. O. Box 397, Ashdown 71822
7	C. F. Peters, M.D. Robert F. McCrary, M.D. Thomas M. Durham, Jr., M.D.	1420 Potts, Malvern 72104 505 West Grand, Hot Springs 71901 505 West Grand, Hot Springs 71901
8	*Richard M. Logue, M.D. John McCollough Smith, M.D. James Rasch, M.D.	601 North University, Little Rock 72205 4000 Woodlawn, Little Rock 72205 10001 Lile Drive, Little Rock 72205
9	Friedman Sisco, M.D. Charles A. Ledbetter, M.D. James L. Pickens, M.D.	P. O. Box 65, Springdale 72764 120 East Bower, Harrison 72601 P. O. Box 128, Rogers 72756
10	Samuel Landrum, M.D. David M. Williams, M.D. Boyce West, M.D.	522 South 16th, Fort Smith 72901 809 West Main Place, Russellville 72801 P. O. Box 220, Clarksville 72830

*Chairman

1976 OFFICERS — COUNTY MEDICAL SOCIETIES — ARKANSAS MEDICAL SOCIETY

ARKANSAS	Pres.—Carl E. Northcutt, Route 1, Box 21-D, Stuttgart 72160 Secy.—Carl E. Northcutt, Route 1, Box 21-D, Stuttgart 72160
ASHLEY	Pres.—F. N. Burt, 310 North Alabama, Crossett 71635 Secy.—James D. Rankin, P. O. Box 232, Hamburg 71646
BAXTER	Pres.—Hubert C. Peterson, Baxter Gen. Hosp., Mountain Home 72653 Secy.—Arthur L. Beard, 126 West 6th, Mountain Home 72653
BENTON	Pres.—Richard N. Pearson, 1105 West Chestnut, Rogers 72756 Secy.—Harry M. Harmon, 601 West Walnut, Rogers 72756
BOONE	Pres.—Don Vowell, 120 East Bower, Harrison 72601 Secy.—Ronald Reese, 651 North Spring, Harrison 72601
BRADLEY	Pres.—Merl T. Crow, 205 East Church, Warren 71671 Secy.—William C. Whaley, 205 East Church, Warren 71671
CHICOT	Pres.—William J. Weaver, P. O. Box Q, Eudora 71640 Secy.—Howard S. Henjyoji, Lake Village Clinic, Lake Village 71653
CLARK	Pres.—John R. Sellars, W. Pine, Arkadelphia 71923 Secy.—James T. Blackmon, 1008 Pine, Arkadelphia 71923
CLEBURNE	Pres.—D. H. McClanahan, 401 W. Searcy, Heber Springs 72543 Secy.—D. H. McClanahan, 401 W. Searcy, Heber Springs 72543
COLUMBIA	Pres.—John Ruff, 104 Hospital Drive, Magnolia 71753 Secy.—Robert W. Hunter, 2602 Crestview, Magnolia 71753
CONWAY	Pres.— Secy.—Thomas L. Buchanan, 200 South Moose, Morrilton 72110
CRAIGHEAD-POINSETT	Pres.—Donald M. Berry, P. O. Box 1478, Jonesboro 72401 Secy.—John T. St. Clair, 505 East Matthews, Jonesboro 72401
CRAWFORD	Pres.—L. R. Darden, P. O. Box 623, Van Buren 72956 Secy.—F. E. Shearer, P. O. Box 458, Alma 72921
CRITTENDEN	Pres.—Milton D. Deneke, P. O. Box 607, West Memphis 72301 Secy.—Larry D. Bernstein, P. O. Box 1705, West Memphis 72301
CROSS	Pres.—K. E. Beaton, P. O. Box 158, Wynne 72396 Secy.—Vance J. Crain, P. O. Box 158, Wynne 72396
DALLAS	Pres.—Jack T. Dobson, P. O. Box 816, Fordyce 71742 Secy.—John H. Delamore, P. O. Box 351, Fordyce 71742
DESHA	Pres.—Guy U. Robinson, 207 South Elm, Dumas 71639 Secy.—Howard R. Harris, 207 South Elm, Dumas 71639
DREW	Pres.—A. K. Busby, 733 Doctors Drive, Monticello 71655 Secy.—J. P. Price, 216 South Main, Monticello 71655
FAULKNER	Pres.—Fred Gordy, 522 Locust St., Conway 72032 Secy.—Bob Banister, 923 Parkway, Conway 72032
FRANKLIN	Pres.—Rebecca Ewing, 604 West Commercial, Ozark 72949 Secy.—David L. Gibbons, 506 West Commercial, Ozark 72949
GARLAND	Pres.—James C. McMahan, 306 Albert Pike, Hot Springs 71901 Secy.—James L. Gardner, 125 Greenwood, Hot Springs 71901
GRANT	Pres.—Curtis B. Clark, 200 South Rose, Sheridan 72150 Secy.—Clyde D. Paulk, 200 South Rose, Sheridan 72150
GREENE-CLAY	Pres.—A. J. Baker, P. O. Box 339, Paragould 72450 Secy.—Clark M. Baker, 115 West Court, Paragould 72450

PROCEEDINGS

HEMPSTEAD	Pres.—George Wright, 202 South Pine, Hope 71801 Secy.—C. Lynn Harris, P. O. Box 550, Hope 71801
HOT SPRING	Pres.—Russell W. Cobb, 1420 Potts, Malvern 72104 Secy.—Larry Brashears, 1234 South Main, Malvern 72104
HOWARD-PIKE	Pres.—Joe D. King, P. O. Box 549, Nashville 71852 Secy.—Phillip L. White, P. O. Box 319, Murfreesboro 71958
INDEPENDENCE	Pres.—Jim E. Lytle, 181 Broad Street, Batesville 72501 Secy.—Charles M. McClain, Jr., 154 S. 3rd, Batesville 72501
JACKSON	Pres.—Jerry M. Frankum, Jr., Second & Laurel, Newport 72112 Secy.—John D. Ashley, Jr., Second & Laurel, Newport 72112
JEFFERSON	Pres.—R. F. Bryant, 1112 Linden, Pine Bluff 71601 Secy.—J. William Nuckolls, 1421 Cherry, Pine Bluff 71601
JOHNSON	Pres.—Jack T. Patterson, P. O. Box 668, Clarksville 72830 Secy.—Boyce West, P. O. Box 220, Clarksville 72830
LAFAYETTE	Pres.—Willie J. Lee, P. O. Box 276, Stamps 71860 Secy.—Craig E. Ditsch, P. O. Box 640, Lewisville 71845
LAWRENCE	Pres.—Ralph Joseph, Hwy. 25 West, Walnut Ridge 72476 Secy.—J. B. Elders, 321 Southwest Third, Walnut Ridge 72476
LEE	Pres.—Dwight W. Gray, 110 W. Chestnut, Marianna 72360 Secy.—E. C. Fields, 77 W. Main, Marianna 72360
LINCOLN	Pres.—James W. Freeland, P. O. Box 159, Star City 71667 Secy.—Richard C. Petty, P. O. Box 580, Star City 71667
LITTLE RIVER	Pres.—Thomas A. Pullig, Ashdown Clinic, Ashdown 71822 Secy.—Joe G. Shelton, Jr., P. O. Box 697, Ashdown 71822
LOGAN	Pres.—Charles McD. Smith, P. O. Box 286, Paris 72855 Secy.—James T. Smith, P. O. Box 286, Paris 72855
LONOKE	Pres.—Willie Harris, P. O. Box 40, England 72046 Secy.—B. E. Holmes, 305 West Front, Lonoke 72086
MILLER	Pres.—Mary Witt Hughes, 1001 Main, Texarkana, Texas 75501 Secy.—Jack Royal, 300 East Sixth, Texarkana 75501 Exec. Secy.—Mrs. Marilyn Pryor, P. O. Box 1813, Texarkana 75501
MISSISSIPPI	Pres.—S. R. Cullom, 608 W. Lee, Osceola 72370 Secy.—Eldon Fairley, P. O. Box 68, Osceola 72370
MONROE	Pres.—Marvin L. Dalton, P. O. Box 763, Brinkley 72021 Secy.—James P. Williams, Jr., 127 S. New Orleans, Brinkley 72021
NEVADA	Pres.—Charles Avery, 427 East 6th, Prescott 71857 Secy.—Michael C. Young, P. O. Box 442, Prescott 71857
OUACHITA	Pres.—Cal R. Sanders, 353 Cash Road, Camden 71701 Secy.—L. V. Ozment, 353 Cash Road, Camden 71701
PHILLIPS	Pres.—H. B. Oldham, P. O. Box 2538, West Helena 72390 Secy.—L. J. Pat Bell, 626 Poplar, Helena 72342
POLK	Pres.—David N. Hefner, 518 Janssen, Mena 71953 Secy.—Henry N. Rogers, 600 Seventh Street, Mena 71953
POPE	Pres.—Gerald Stolz, 500 South Detroit, Russellville 72801 Secy.—W. E. King, 3105 West Main Place, Russellville 72801
PULASKI	Pres.—Amail Chudy, 1801 Maple, North Little Rock 72114 Secy.—James Weber, P. O. Box 188, Jacksonville 72076 Exec. Secy.—Mr. Paul Harris, 311 Doctors Building, Little Rock 72205
RANDOLPH	Pres.—W. Warren Scott, P. O. Box 585, Pocahontas 72455 Secy.—Norman K. Smith, 107 Van Bibber, Pocahontas 72455

PROCEEDINGS

SALINE	Pres.—Donald Viner, 105 McNeil, Benton 72015 Secy.—R. A. Council, 910 North East Street, Benton 72015
SCOTT	Pres.—Harold B. Wright, P. O. Box 249, Waldron 72958 Secy.—Harold B. Wright, P. O. Box 249, Waldron 72958
SEBASTIAN	Pres.—S. Wright Hawkins, Waldron Rd. at Ellsworth, Fort Smith 72901 Secy.—Peter Irwin, 1500 Dodson, Fort Smith 72901 Asst. Secy.—Mrs. Betty Stipsky, Waldron Road at Ellsworth, Fort Smith 72901
SEVIER	Pres.—O. D. Brown, Jr., P. O. Box 890, DeQueen 71832 Secy.—Wayne G. Pullen, P. O. Box 391, DeQueen 71832 Exec. Secy.—Mr. Jim E. Pearce, Highway 70 West, DeQueen 71832
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Auxiliary Activities



Past Presidents of the Auxiliary gathered for breakfast on Tuesday morning. Present were (standing, left to right) Mrs. Harold Langston, Mrs. Jack Kennedy, Mrs. Louis Hundley, Mrs. C. D. Burroughs, Mrs. Art Martin, Mrs. Charles Wilkins, Mrs. Curtis W. Jones, Sr., Mrs. John McCollough Smith, Mrs. Mason Lawson, Mrs. Carl Parkerson, Mrs. A. A. Little, Mrs. Hoyt Choate, and Mrs. James G. Martindale; (seated, left to right) Mrs. Paul Gray, Mrs. A. S. Koenig, Mrs. Lynn Harris, Mrs. W. Meyers Smith, honorary member Mrs. Paul Schaefer, and Mrs. James W. Branch.



Officers of the Arkansas Medical Auxiliary for 1976-77 are: Mrs. Carl Wilson, Fort Smith, President (third from left, standing); Mrs. Kemal Kutait, Fort Smith, President-elect (seated, center); Recording Secretary Mrs. Larry Lawson (seated, right); Treasurer Mrs. Jack Downs (standing, left); Northeast Vice President Mrs. James Sanders (seated, left); Northwest Vice President Mrs. Morriss Henry (not pictured); Southeast Vice President Mrs. James Bethel (standing, second from left), and Southwest Vice President Mrs. A. E. Andrews (standing, right).

**REPORT OF THE
52nd ANNUAL CONVENTION
WOMAN'S AUXILIARY
TO THE
ARKANSAS MEDICAL SOCIETY
April 25-27, 1976**

The 52nd Annual Convention of the Auxiliary opened with the pre-convention board meeting at 2:00 P.M. on Sunday, April 25, 1976. The first general session was held at 9:30 A.M. on Monday, April 26, with Mrs. Curry Bradburn, President, presiding. T. E. Townsend, M.D., President, and Paul C. Schaefer, Executive Vice President, brought greetings from the Arkansas Medical Society. Mrs. Bradburn presented a gift from the Auxiliary to Mr. and Mrs. Schaefer in expression of appreciation to them. Mr. Schaefer will be retiring from his position on August 1, 1976.

Special guests for the convention were Mrs. Norman Gardner, President-elect of the American Medical Auxiliary, and Mrs. J. Gordon Dees, President of the Woman's Auxiliary to the Southern Medical Association.

Officers elected for 1976-77 were:

President: Mrs. Carl Wilson, Fort Smith

President-elect: Mrs. Kemal Kutait,
Fort Smith

Recording Secretary: Mrs. Larry Lawson,
Paragould

Treasurer: Mrs. Jack Downs, Little Rock

Northeast Vice President: Mrs. James Sanders,
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Northwest Vice President: Mrs. Morriss
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Southeast Vice President: Mrs. James Bethel,
Benton

Southwest Vice President: Mrs. A. E. Andrews,
Texarkana

Proposed changes in the By-Laws were approved by the Auxiliary. The revisions included changing the name of the organization to the Arkansas Medical Society Auxiliary.

Mrs. Carl Wilson, Mrs. W. M. Williams, Mrs. Kemal Kutait, and Mrs. Curtis Stover were



MRS. CARL L. WILSON

President 1976-77

Arkansas Medical Society Auxiliary

named delegates to the National Convention in Dallas in June.

The House of Delegates approved a recommendation from the Board that the annual dues for 1976-77 be \$15 with \$7 sent to the National Auxiliary and \$8 remaining with the State Auxiliary. The treasurer reported a dues-paying membership of 888.

The registration for the Auxiliary convention was 119.

Hereditary Hemorrhagic Telangiectasia: Demonstration of a Myocardial Lesion by Postmortem Coronary Angiography*

C. Lindsey Miller, M.D.*** and Marvin L. Murphy, M.D.**

Hereditary hemorrhagic telangiectasia (Rendu-Osler-Weber disease) is an inherited vascular disorder affecting the skin and various organs. Symptoms have been related to hemorrhage at various sites, anemia, and pulmonary or cerebral arteriovenous fistulae. Diagnosis is generally established by typical physical findings and a family history of similar lesions.¹⁻⁴

The purpose of this case report is to describe for the first time a lesion typical of hereditary hemorrhagic telangiectasia in the myocardium, as demonstrated by histological examination and postmortem coronary angiography. The heart has been reported to be involved with angiomas on one occasion, but hereditary hemorrhagic telangiectasia was not clearly demonstrated.⁵

Case Report

The patient was a 59-year-old white male alcoholic who presented to the Little Rock Veterans Administration Hospital with symptoms of a right homonymous hemianopsia, a history of frequent epistaxis, and multiple skin telangiectases. There was a family history of similar skin lesions and epistaxis in the mother, brother, and maternal uncle. Surgical removal of an aneurysm of the left internal carotid artery corrected the hemianopsia during that admission.

There were several admissions during the ensuing nine years for various manifestations of his disease. Most admissions were due to severe anemia associated with recurrent epistaxis. Abnormalities on chest x-rays were noted and were attributed to pulmonary arteriovenous fistulae. On one occasion he was admitted because of chest pain and a syncopal episode. An abnormal electrocardiogram was noted at that time with nonspecific ST-T wave changes. Ischemic heart disease was the most seriously considered etiology for these findings.

His final admission was for increasing weakness and dyspnea. Physical examination revealed a cyanotic, dyspneic white male with a blood pressure of 130/70 and a regular pulse of 100. There was cardiomegaly and a loud harsh systolic grade III/VI murmur at the apex and over the pulmonic area. Hepatomegaly was noted as well as 2+ edema of the lower extremities. Typical telangiectatic lesions of the skin were present over the trunk, extremities, and tongue.

Pertinent laboratory findings revealed a hematocrit of 32% and a hemoglobin of 9.9gm%. There was a positive stool guaiac. Arterial gases revealed an O₂ saturation of 66% on room air and 84.5% on 3 liters nasal oxygen. An electrocardiogram revealed a sinus rhythm with a left bundle branch block, frequent premature atrial contractions, and premature ventricular contractions.

His hospital course was one of continued dyspnea despite appropriate therapy for pulmonary edema which gradually worsened, and he expired suddenly on the evening of his seventh hospital day.

Autopsy Findings

Central nervous system — Encephalomalacia was noted consistent with surgical trauma due to removal of an arterial venous fistula of the left anterior communicating artery.

Skin — Numerous telangiectatic lesions involving the body, extremities, and face were present.

Lung — Numerous pleural adhesions, fibrosis of pulmonary parenchyma, and an arteriovenous fistula in the left lung were found.

Gastrointestinal — Telangiectatic lesions were found to involve the tongue, stomach, small intestine, and colon.

Cardiovascular — The heart weighed 650 gm. The left ventricle measured 18 mm in thickness and the right ventricle measured 4 mm. The pericardium was thickened and appeared to be inflamed. The pericardium was carefully ex-

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amined for telangiectatic lesions but none were found. Postmortem coronary angiography employing the Schlesinger technique was performed.⁶ The coronary arteries were carefully dissected and no atherosclerotic lesions were found. The postmortem coronary angiogram is illustrated in Figure 1. This reveals a "stain" indicated by the symbol "TL" consistent with an arteriovenous fistula. Figure 2 reveals the telangiectatic lesion to be subendocardial in location with surrounding normal myocardium. A higher magnification of the lesion seen in Figure 2 is illustrated in Figure 3 and is a typical histologic lesion of hereditary hemorrhagic telangiectasia.

Discussion

This case demonstrates for the first time the

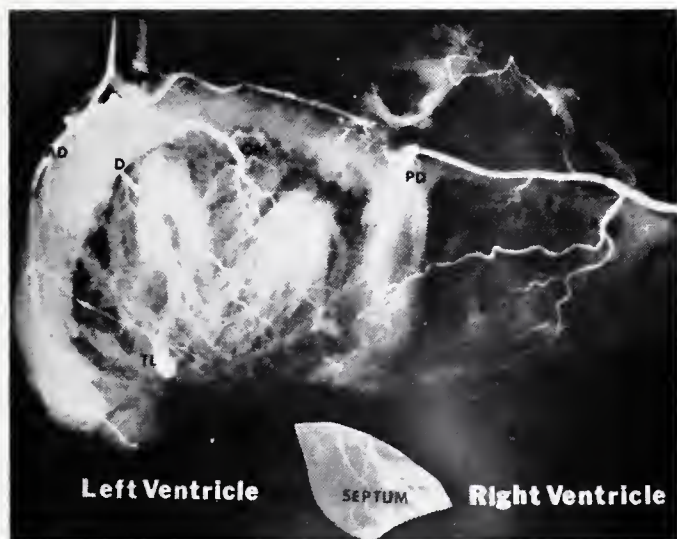


FIGURE 1

This is a postmortem coronary angiogram demonstrating the location of the telangiectatic lesion (TL) in the left ventricular myocardium, appearing as a "stain." Coronary arteries are outlined: anterior descending (AD), diagonal (D), obtuse marginal (OM), circumflex (C), posterior descending (PD), and the marginal branch of the right (R).

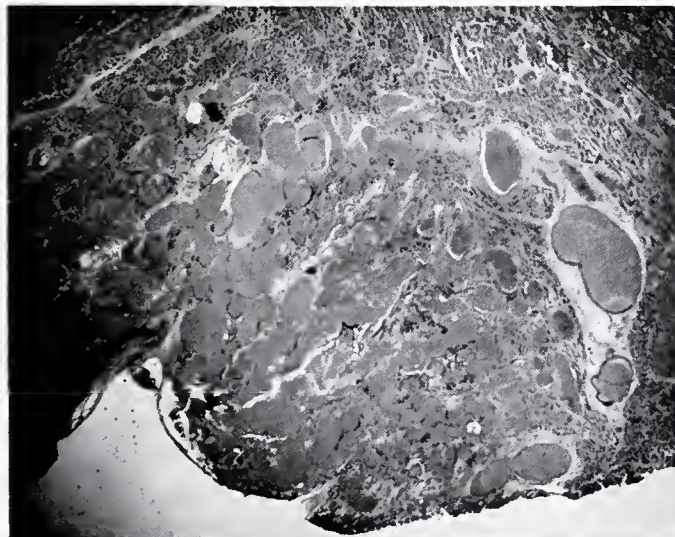


FIGURE 2

This illustrates the subendocardial location of the telangiectatic lesion with surrounding myocardium.

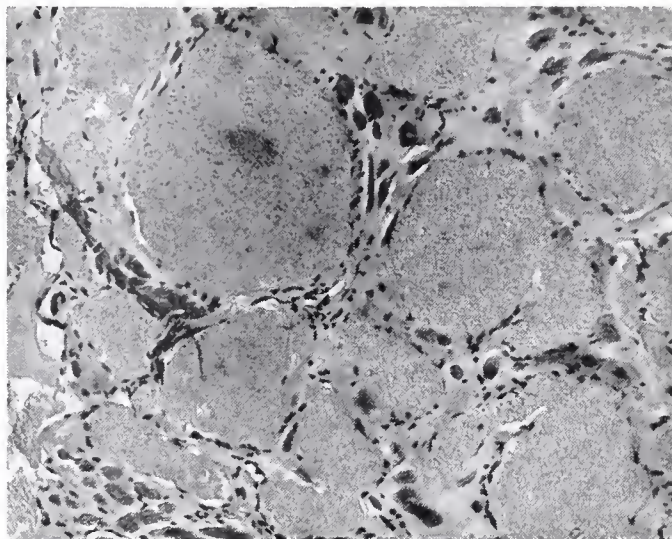


FIGURE 3

A high magnification of the telangiectatic lesion seen in Figure 2 reveals numerous dilated vascular spaces lined with endothelial cells. These endothelial channels are engorged with red blood cells. Delicate septa of fibrous connective tissue form the stroma of the vascular lesion.

appearance of a typical lesion of hereditary telangiectasia in the myocardium. The significance of the ventricular telangiectatic lesion to the cardiomegaly is not known but it is probably unrelated. Several factors such as alcoholism and chronic anemia could have contributed to the development of cardiomegaly in this patient, but the exact cause is undetermined. With increasing use of coronary angiography, a description of the telangiectatic lesion seen in this case may aid in identifying such lesions before death.

Acknowledgment

The assistance of William Lynch in performing the postmortem angiography is greatly appreciated.

REFERENCES

1. Rendu: Epistaxis repetees: chez un sujet porteur de petits agniomes cutanes et maquex. Bull et mem Soc Med d hop de Paris 13:731-733, 1896.
2. Osler, W.: On family form of recurring epistaxis associated with multiple telangiectases of skin and mucous membranes. Bull Johns Hopkins Hospital 12:333-337, 1901.
3. Weber, F. P.: Multiple hereditary developmental angiomas (telangiectases) of skin and mucous membranes associated with recurring hemorrhages. Lancet 2:160-162, 1907.
4. Hodgson, C. H., Burchell, H. B., Good, C. A., and Clagett, O. T.: Hereditary hemorrhagic telangiectasia and pulmonary arteriovenous fistula. N.E.J.M. 13: 625-636, 1959.
5. Bird, R. M. and Jaques, W. E.: Vascular lesions of hereditary hemorrhagic telangiectasia. Medical Intelligence 260: 597-599, 1959.
6. Schlesinger, M. D.: New radiopaque mass for vascular injection. Lab Invest 6:1-11, 1957.

Coronary Artery Bypass Surgery: A Clinically Acceptable Procedure

Eliot Corday, M.D. and Steven Rubins, M.D.*

Although considerable controversy still exists about the exact clinical application of the coronary bypass procedure, it is already evident that this procedure is one of the most important therapeutic advances of the past decade. Surgical revascularization is effective in relieving disabling symptoms which enables many individuals to return to their occupations, and it may extend life in certain subgroups.

The procedure is not indicated in all patients with coronary artery disease, but is of clinical benefit in certain select groups such as impending myocardial infarction, high risk coronary lesions, and disabling unresponsive angina. It is of benefit in selected patients when combined with aneurysmectomy or valve repair. The fact that many centers across the world are able to perform the bypass operation in selected subgroups with a very low mortality of one percent or less indicates that the techniques have improved greatly. However, the success of the surgery is completely dependent upon the proper selection of patients gauged upon clinical disability, an adequate left ventricular myocardium and a patent distal coronary artery system capable of carrying significant bypass blood flow, Favaloro, et al (1970).

The Adverse Effects of

Coronary Bypass Surgery

The reasons for clinical benefit or failure are dependent upon whether the bypass provides enough additional blood flow to the ischemic myocardium to prevent angina, improve impaired contractile function, prevent infarction, and lessen the possibility of sudden death. Certain disturbing facts have been reported in the literature, such as that 8 to 30% of saphenous vein grafts become obstructed and 5 to 29% of patients show signs of cardiac infarction within one year of surgery. The coronary anatomy must be carefully studied to determine if the distal coronary circulation is capable of carrying an adequate blood flow, because if not, it will probably occlude within a short period of time. There is increasing evidence that if the bypass

procedure is performed on a patient within a few days of acute coronary occlusion, it is associated with a higher mortality. Other reports indicate accelerated progression of arteriosclerosis in the native coronary circulation and in the grafts themselves.

Reason for Clinical Benefit or Failure

Improved surgical skills including performance of multiple bypasses really were not achieved until 1971. The studies performed since the more complete operation was perfected generally reveal more beneficial effects such as improved relief of angina and increased survival.

Success of the operation depends upon (1) appropriate selection of vessel to be bypassed, (2) condition of the myocardium, such as whether it is diffusely scarred, or still viable, (3) surgical technique, (4) skill of the anesthesiologist, and (5) postoperative care. The cardiologist must weigh the benefits and drawbacks of surgery by comparing the natural history of the patient's subgroup with the record of success of the local surgical group for each class of patient.

Briefly speaking, the candidates most likely to benefit from the bypass operation are those with adequate remaining contractile function of the left ventricular myocardium and patent distal coronary artery circulation that will permit good runoff. Patients who have an abnormal high left ventricular end-diastolic volume, ejection fraction of less than 0.35 and congestive failure, are those who are least likely to obtain prolonged benefit from the procedure.

Evaluation of Effectiveness of

Bypass Procedure

Long term effectiveness of the procedure will require detailed studies of large series of patients carefully categorized and matched as subgroups based upon clinical symptomatology, anatomy and cardiac function. Such evaluation necessitates repeat catheterization and angiograms over a period of years to determine whether the vessels remain open, whether myocardial contractility is maintained, and the degree of cardiac compensation, Webster, et al (1974).

To provide comparable studies the anatomic lesions must be matched as to the number, loca-

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tion and degree of vessel narrowing, the adequacy of runoff, segmental myocardial contractility and the presence of ventricular aneurysms and valvular lesions. The patients will have to be further subgrouped in categories depending upon the clinical symptomatology and the urgency of the procedures such as stable angina, unstable angina, or acute cardiac infarction.

Operative results should be correlated with the number of vessels bypassed and the efficacy of each procedure as judged by graft flow. Long term patency and myocardial dynamics must be assessed by sequential cardiac catheterization and angiographic studies. At present, repeat angiograms are usually performed on patients with continuing symptoms and complications; therefore, most reports on patency are biased toward the unfavorable and cannot be accepted as representative of overall results. Such comprehensive data are needed, however, to evaluate the effectiveness of the procedure.

Experience in evaluating the effects of other procedures such as the use of anticoagulants for treatment of acute myocardial infarction did not provide comparative data until the procedures were randomized. Then it became obvious that prospective studies did not give the proper picture of the status of anticoagulation. Because of the great success already reported from prospective studies, it is difficult to randomize in those cases where the bypass procedure is already regarded as being of established clinical benefit or life saving. For instance, most investigators choose not to randomize the unstable patient with a high risk left main coronary stenosis, because bypass of such a lesion appears to reduce the danger of sudden death.

One of the main difficulties in assessing the results is that definitions of the subgroups are confusing and lack uniformity. To learn the long term effectiveness of the procedures it will require more uniform use of definitions in a large series of patients carefully categorized and matched as subgroups based on clinical symptomatology, anatomy and function. The diagnostic and surgical procedures at some centers are technically superior, making it very difficult to match the patients enrolled in cooperative studies.

Indications for Surgery

1. *Stable Angina*

This is a group of patients with coronary artery disease who complain of anginal pain which is precipitated by exertion and emotional stress. The angina can usually be avoided by limiting the provocation and physical activity. Administration of therapeutic agents such as propranolol and long acting nitrates often reduce the frequency and severity of angina, so that their disability is minimal. The survival rate in these patients is relatively good, therefore it is difficult to evaluate whether a surgical procedure will extend life. However, since a higher percentage of patients are symptom-free after surgery, they may have less anxiety and their quality of life is improved.

If the stable angina patients continue to be incapacitated by pain despite medical measures, they should be classified as disabled and considered as candidates for surgery. Bypass often will relieve angina and allow them to regain their occupation and life style. A recent study performed in Houston on 70 volunteers with stable disabling angina who were randomized indicates that the quality of life is decidedly improved in the operated group, and 85% are completely free of angina.

2. *Unstable Angina*

This group might best be referred to as intermediate syndrome because they are patients with unstable ischemic heart disease which can revert to stable angina pectoris or progress to myocardial infarction. Some use the term impending infarction because these patients are at high risk for myocardial infarction and sudden death. The characteristic features of unstable angina are that the pain suddenly starts up and within a short period of time increases in frequency and intensity in a crescendo fashion. In other patients the pain is brought on without exertion or awakens the patient from sleep. The pain often has all the characteristics of an acute myocardial infarction except that the patient does not exhibit evidence of myocardial necrosis as revealed by the onset of Q waves or elevation of enzymes. Nitroglycerin often does not readily relieve the chest pain.

It is difficult to estimate long-term survival in such patients. Some centers have reported a mortality rate as low as 6%, others as high as 38% in one year. Long term surgical followup at some centers such as the Cedars-Sinai Medical

Center and Cleveland Clinic, Bennett (1974), suggest the bypass has decidedly improved life expectancy, because operative mortality is reduced to less than 1% and the 3-year survival is decidedly better than that with medical management. However, one report indicates a 22.5% operative mortality in a small series of 40 patients where most deaths were due to unsuspected acute infarction found in 6 patients, Conti, et al (1974). A cooperative study using randomized patients has reported an operative infarction rate of 22% and an operative mortality of 6%. Therefore, it is obvious that in order to compare the benefits of surgical vs. medical management of these patients, larger series will be required and surgical skills and the selection of patients for the procedure must be comparable. Patients with acute infarction discovered at surgery who were included in the series should be eliminated from the impending series.

3. *Acute Cardiac Infarction*

Some surgeons believe that coronary bypass should be instituted immediately after coronary occlusion hoping that it will reduce the size of the infarct. However, the surgical mortality rate of the procedure performed within a few hours after coronary occlusion appears to be higher than that obtained under medical management. Recent studies demonstrated a mortality up to 44% on uncomplicated bypass patients operated on within the first 24 hours after coronary occlusion, whereas after the first 30 days it was only 4%.

A smaller operative mortality may be anticipated if the bypass is performed within 3 hours of occlusion, but it is logistically difficult to perform coronary angiography and initiate the procedure within this short period of time. We have demonstrated in animal studies that when bypass is performed after 3 hours of coronary occlusion, reperfusion can result in serious uncontrollable arrhythmias, cardiac metabolic and mechanical dysfunction, and actually accelerate necrosis within the first 5 hours, Lang, et al (1974). In a subsequent series of dogs where 7 days reperfusion took place after 3 hours occlusion, the average infarct size was reduced about one-half. However, in about one-third of the animals, the infarct size was not reduced. This would suggest that surgery after 3 hours occlusion bypass should be reserved for the com-

plications of coronary occlusion where the risk under medical management is inordinately high, as reduction in infarct size is unpredictable.

4. *The High Risk Lesion*

Studies of the natural history of patients treated medically with one vessel involvement is accompanied by a 6-year mortality of 14%, whereas with 2 vessel obstruction it is 42%, 3 vessel 67% and left main coronary narrowing 63%, McNeer, et al (1974). Because of the excessive mortality in the 3 vessel and left main coronary lesions, they must be considered highly lethal and should be considered for bypass. Statistics have already indicated a favorable 2 year survival after multiple bypasses in the high risk lesions. This raises the question whether angiography should be more routinely performed to identify those who are of high risk who might benefit by such surgery.

5. *Ventricular Aneurysms — Valvular Dysfunctions*

Recent experiences at the Los Angeles Cedars-Sinai Medical Center and also at the Cleveland Clinic have both indicated a reduced operative mortality when ventricular aneurysms or valvular defects are performed in combination with bypass surgery. The mortality rate of ventricular aneurysmectomy has been reduced in the past few years from 20% to 6% and that of valvular replacement to only 3.5% when these are performed in combination with the bypass procedures.

Conclusions

With improved patient selection and technical proficiency, coronary bypass surgical mortality has been reduced, and long term survival increased. Because it improves the quality of life by relieving angina in many subgroups, we conclude that coronary bypass is now a clinically acceptable procedure in appropriately selected patients.

REFERENCES

- Bennett, D. J., Loop, F. D., Sheldon, W. C., et al (1974): Cleveland Clinic Quarterly, 41, 51.
- Conti, C. R., Brawley, R. K., Griffith, L. S. C., et al (1974): American Journal of Cardiology, 32, 745.
- Favaloro, R. G., Effler, D. B., Groves, L. K., et al (1970): Annals of Thoracic Surgery, 10, 97.
- Long, T. W., Corday, E., Gold, H., et al (1974): American Journal of Cardiology, 33, 69.
- McNeer, J. F., Starmer, C. F., Bartel, A. G., et al (1974): Circulation, 49, 606.
- Webster, J. S., Moberg, C., Rincon, G. (1947): American Journal of Cardiology, 33, 195.

Snake Bites: A Review

Nathan E. Strickland, M.D.*

Snakes and snake bites have been a source of mystery, fear, folklore and even religion in the United States since the first settlers. This has carried over until today and contributes to the great misunderstanding, even by the medical community, of snake bites. The fact is, snake bites are uncommon and serious disability or death from them is unusual. There are about 6,000 to 8,000 reported bites by venomous snakes in the United States per year. Of these, only 1/3 to 1/2 result in any significant degree of envenomation, and approximately 1/4 result in no envenomation.¹ However, the number of bites is increasing due to an increase in population and outdoor recreation. Ninety-eight percent of these bites are pit vipers (Crotalidae family) with the other two percent caused by coral snakes, cat eyes (found only along the Rio Grande) and various imported species in zoos. Fifty-eight percent of the victims are less than 21 years of age with a decreasing incidence of snake bite with increasing age. Ninety-six percent of the bites occur on the extremities, with the ankle and dorsum of the foot being the most common site.¹ Since 1960 the death rate has been only 0.28% of all bites or about 20 deaths per year. But, the incidence of loss of limb or loss of function of the limb is significantly greater and constitutes the greatest challenge to the physician.

Considering the potential catastrophic results of a venomous snake bite, all physicians concerned with acute patient care must be able to correctly diagnose a venomous bite and administer proper initial treatment. Correct treatment of the bite and the potential complications of treatment must be understood. Most physicians have little idea of how to manage this problem, because venomous bites are infrequent and literature regarding them is scattered and occasionally contradictory. With this background, what must a physician do when confronted with a snake bite? The purpose of this paper is to review the world's literature and offer current recommendations for diagnosis and treatment of venomous snake bites.

DIAGNOSIS

IDENTIFICATION—First, the physician must be able to identify the offending snake as poisonous or not. The bite aftermath is almost 100% fatal to the snake, for the patient will usually bring in several pieces of reptilian tissue for your identification. Therefore, several anatomic features must be used to identify these snakes. Distinctive features are usually present in the majority of the members of the family Crotalidae but may be absent from any individual snake. Eight venomous snakes exist in Arkansas:² the Western Diamondback rattlesnake (*crotalus atrox*), the Timber rattlesnake (*crotalus horridus horridus*), the Canebrake rattlesnake (*crotalus horridus atricaudatus*), and the Western Pygmy rattlesnake (*sistrurus miliarius streckeri*); the Western Cottonmouth or Water Moccasin (*Agkistrodon piscivorus leucostoma*); the Southern Copperhead Moccasin (*Agkistrodon contortrix contortrix*); the Northern Copperhead Moccasin (*Agkistrodon contortrix mokeson*); and the Texas Coral Snake (*Micrurus Fulvius tener*).

Coloring is the most variable and unreliable sign, since the non-venomous snakes mimic venomous ones for their protection. The rattlesnakes have typical coloring and can be easily referenced from the literature. They are usually easily identified by the presence of rattles, but this is not an absolute finding for they may be broken off during food gathering or molting. The Water Moccasin is a dark green to black-brown color with cross hatch bands and has a distinctive white oral mucosa that resembles cotton. The Copperhead is usually coppercolored with brown-bronze cross hatches but may be seen in a very dark or light phase. The Coral snake is very colorful, usually with a black nose, rings that completely encircle the body in a definite order of black, yellow, red, yellow, black. This snake must be carefully differentiated from the harmless Scarlet King and Louisiana Milk snakes that have red or yellow noses, rings that do not encircle the body and are in the order of red, black, yellow, black, red.

Pit Vipers have a characteristically triangular shaped head with facial pits located between the

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nostrils and the eyes; other snakes including the Coral do not. Venomous snakes do not have a loreal plate, a scale located between the nostril plate and the periorbital plate. All have vertically elliptical pupils whereas non-poisonous varieties have round pupils. Fangs are usually identifiable. In Pit Vipers, they are hollow retractable teeth near the front of the maxilla. The Coral snake has small fangs fixed in the anterior maxilla. Nonpoisonous snakes have teeth but no fangs. Examination of the tail is helpful in that venomous snakes usually have a single row of subcaudal scutes, whereas harmless ones have a double row. The Cottonmouth has an unusually blunt tail, and of course, the rattlesnake has rattles. Figure 1 is an illustration of the various characteristics of poisonous and non-poisonous snakes.^{1,2,3} Due to the low incidence of Coral snake bites this paper will deal only with Pit Viper bites.

ENVENOMATION — The second diagnostic job of a physician has when confronted with a possible snake bite is to determine if envenomation has actually occurred. The Pit Vipers inject a toxin produced by a modified salivary gland into the tissue through hollow retractable teeth or fangs similar to a hypodermic needle.⁴ By striking the object with its mouth open, about 180 degrees, and its fangs extended, the snake penetrates its victim. By biting down quickly, the venom is injected. Contrary to folklore, Pit Vipers will strike repeatedly at their victims until they are out of range, and the last strike is just as toxic as the first.^{5,6} Coral snakes, due to the small size of their mouth and short fixed fangs, must seize a small object, usually a finger or toe, and chew repeatedly to inject their venom.⁵

Pit Vipers' venoms are extremely complex since they contain 5 to 15 enzymes, 3 to 12 non-enzymatic proteins, and at least half a dozen other substances known and unknown.⁷ Table I represents some of the substances found in crotalid venoms and their primary mode of action, and reveals the complexity of pharmacological problems they may produce. The snakes found in Arkansas are capable of delivering varying amounts of venom per strike (Table II), and the venom of each species has a characteristic effect on its victim.⁸ For example, the Copperhead is much less lethal than the Diamondback, primarily because its venom is highly proteolytic and weakly hemotoxic; whereas the rattler's is just the opposite. The pharmacology of crotalid venom has 4 primary toxic effects that are present to varying degrees in each species' venom. These have classically been labeled local necrosis, cardiotoxic, hemotoxic, and neurotoxic, in an attempt to provide a simple way of evaluating the effects of envenomation. The physician must remember, however, the complexity of the venoms and anticipate an effect on all organ systems from the previously named biochemical constituents. Envenomation is in effect a multiple poisoning.

An almost immediate local effect of venom is erythema, edema, and pain. If these are not present within the first 20 minutes, it is safe to assume no envenomation has occurred. Due to the highly proteolytic enzymes, the local tissues undergo digestion rapidly. Edema and the

TABLE I
COMPOSITION OF PIT VIPER VENOMS

Phospholipases A
Hyaluronidase
5' — Nucleotidase (AMPase)
Phosphodiesterase I
(Exonuclease)
DNAase
RNAase
ATPase
NADase
L-Amino Acid Oxidase^a
L-Arginine — Ester Hydrolases
? *Proteases*
Exopeptidases
Acetylcholine
Bradykinin
Thrombin Like Protein

CHARACTERISTICS OF SNAKES

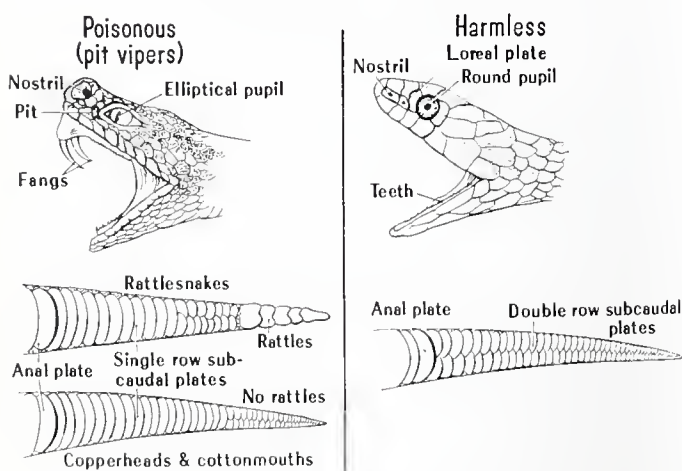


FIGURE 1 Comparison of the features of pit vipers with those of harmless snakes

TABLE II
ARKANSAS SNAKES, VENOM YIELD, AND LETHALITY

	<i>Avg. Length (Inches)</i>	<i>Avg. Venom Yield (MG)</i>	<i>LD50 IP</i>	<i>MG/KG IV</i>
RATTLESNAKES				
Western Diamondback	30-65	175-320	3.71	4.20
Timber	32-54	75-150	2.91	2.63
Canebrake	32-54	75-150	2.90	2.60
Pigmy	18-30	25-75	2.50	1.78
MOCCASINS				
Cottonmouth	30-50	90-145	5.11	4.00
Copperhead	24-36	40-70	10.50	10.92
CORAL				
Eastern	16-28	2-6	0.97	—

spread of the venom is enhanced by hyaluronidase, and local vascular coagulation further jeopardizes the viability of the tissue. Within minutes, a large cellular inflammatory response develops. As the injury progresses, large volumes of fluid are sequestered in the damaged tissues or lost into a bandage if the wound is open.

The effects on the heart are twofold. First, there is a direct myocardial and conduction cell damage from the venom that leads to an unstable electrical status and decreased cardiac output. Many immediate deaths from snake bite are due to this arrhythmia produced by a direct intravenous injection of the venom. Second, the heart is placed under an extreme demand by an alteration of cardiac dynamics by the release of sympathetic stimulation, activation of the kinin-bradykinin system, shock and sepsis.

The hemotoxic and vascular effects are threefold. First, the cellular components are damaged by lysis due to the action of phospholipase A and other enzymes on the cell wall, resulting in a decrease in the red cell mass. Second, certain thrombin-like and other proteins enter the coagulation scheme and induce a consumption coagulopathy producing a bleeding tendency. Third, the effect of bradykinin and certain proteases on vessels increases vascular permeability and post-capillary venule resistance. This produces both vascular pooling and loss of plasma or blood into the tissues, decreasing the intravascular volume with a resultant decrease in cardiac output and tissue perfusion.

The neurotoxic effects produce direct neuron damage and death altering CNS conduction pathways and peripheral nerve conduction. A curare-like action may also occur at the neuromuscular junction.

These various toxic effects are manifested in a combination of local and systemic findings. Erythema, edema and necrosis develop locally. If all the venom is subcutaneous, massive blebs may develop with skin necrosis. If injection into a fascial compartment occurs, edema rapidly occludes the major vessels in the compartment and distal gangrene ensues. Systemic findings include tachycardia, PVC's, and occasionally heart block and ventricular fibrillation. Frank pulmonary edema or cardiogenic shock may occur. Early symptoms of weakness, vertigo, paresthesia, fasciculations, migratory muscle cramps, giddiness, nausea and vomiting may appear within 10 to 15 minutes. Hyper- or hypothermia is common in any stage. Diarrhea, fecal incontinence, or urinary incontinence sometimes develop within two hours and are usually bloody. As the hemotoxins take effect, generalized petechiae and ecchymoses are followed by the loss of blood or blood tinged secretions from all orifices, and hypovolemic shock is a problem. Renal, pulmonary and hepatic failure may occur in the first 24 hours due to the direct effect of the venom and to secondary factors such as myoglobinemia, hemoglobinemia, and shock. Following a stage of giddiness, delirium and hallucinations develop that may progress to convulsions, coma and death.

In order for a physician to correctly treat these cases, he must have some guidelines to establish the severity of venenation. In 1955, Wood, Hockback and Green⁹ described a method of grading venenation by Timber rattlers and Copperheads. This system has been revised by Parrish in 1959¹⁰ and McCullough and Genarro in 1970.⁵ It is now standard nomenclature for the evaluation of all venomous snake bites (Table III). Grade 0

TABLE III
SEVERITY OF VENENATION

Grade	Venenation	Systemic Symptoms	Local Symptoms
0	None	None	Minimal
I	Minimal	Usually None	Moderate
II	Moderate	Mild & Late	Mod-Severe
III	Severe	Mod-Severe	Severe
		Rapidly Progressive	
IV	Very Severe	Extremis	Severe

bites produce no systemic symptoms. There may be one or more fang marks with edema and erythema extending less than one inch in diameter from the fang marks in the first 12 hours, and only minimal pain is present. Grade 1 bites usually cause no systemic symptoms. Locally edema and erythema is from 1 to 5 inches in the first 12 hours and there is moderate to severe pain locally.

Grade 2 bites elicit mild systemic symptoms including a low grade fever, tachycardia, nausea, vomiting, diarrhea, dizziness, giddiness, and hypotension. Locally, the edema and erythema extends from the bite 6 to 12 inches. Petechiae and ecchymoses may be present. Pain is usually severe involving the entire extremity. Grade 3 bites are characterized by severe systemic symptoms, including blood loss, generalized petechiae, ecchymoses, coagulopathy, delusions, convulsion, and coma. Locally, there is a greater than 12 inch reaction to the bite including blebs and necrosis. The pain is severe in the entire extremity. Grade 4 envenomation is a terminal stage both locally and systemically. The physician must not, however, be satisfied with a single temporal classification of the degree of envenomation, for the signs and symptoms of envenomation may change very rapidly with or without treatment.

TREATMENT

Many therapeutic regimens have been proposed for snake bites. Most are tinged with romantic, religious, and unfounded ideas. For example, the treatment seen in the western movies and performed by some physicians consists of (1) a tight tourniquet, (2) incision and suction, and (3) a good slug of alcohol. This regimen may (1) produce gangrene and loss of the extremity, (2) cause unnecessary injury to the incised limb and poison the person doing the suctioning, and (3) speed the absorption of toxin by alcohol's

vasodilatory effect and cloud the physician's CNS evaluation. However, since about 1968,^{11,12,13,14,15,16,17,18} the recommended mode of treatment has crystallized to the following rationale of therapy, consisting of five major goals: inhibition of venom absorption, removal of venom, neutralization of venom, moderation of venom effects, and prevention of complications.

INHIBITION OF VENOM ABSORPTION

—To decrease absorption, three measures may be used: immobilization, local cooling and light tourniquet. First the entire patient should be placed at rest and the extremity should be splinted in a position of function, either slightly dependent or at the level of the patient and *never* elevated. Second, the application of fresh water ice to the local area of bite may be done for short term relief of pain only. The use of local ice over a prolonged period of time, usually greater than 30 minutes, packing the extremity in ice, and the use of salt water or dry ice is to be absolutely condemned, for it has been shown to result in greater loss of function or tissue.^{5,19,20,21,22} Third, a very light tourniquet should be applied above the area of a bite on the extremity to occlude the lymphatic and venous return to the heart. The tourniquet should be intermittently released after starting treatment since Willson and others²³ have reported deaths within minutes of tourniquet release due to a rapid vascular transport of the toxin from the previously occluded local area. A completely occlusive tourniquet is indicated only when there is local evidence of a severe bite and the time involved in transport to a hospital is such that placing the extremity in jeopardy is necessary to save the patient's life.

REMOVAL OF VENOM

—There are two basic measures that can be used to remove as much venom as possible, and although controversial, are generally accepted as proper treat-

ment of snake bite. First, incision and suction has been shown to remove 50% of radioactive tagged venom from the wound if instituted within 3 minutes of the bite.¹¹ However, the deeper the injection and the longer the interval between the bite and the incision and suction, the smaller the amount retrieved. It is important that the incision be a proper one and herein lies the danger of advocating its use by the laity. The incision should be 1/8 to 1/4 inch in length, only as deep as the skin and subcutaneous tissue and only at the fang marks. Larger, deeper and multiple incisions up the extremity only damage important structures, lead to severe bleeding, inhibit suction, and are no more effective.²⁴

Excision of the bitten area has been advocated since the beginning of medical treatment of snake bites in the United States and is still somewhat controversial. The modern rationale behind its use is based on a radioactive tagged venom study by Snyder,¹⁶ showing that 80 to 90% of the venom is still present locally 2 hours post-bite. In instances where it has been used in the first 1½ hours post-bite, no antivenin was used, and the progression of the systemic symptoms was halted.²⁵ Excision also allows the evaluation of the depth of the bite and the removal of fangs, occasionally broken off in the wound, thus reducing the possibility of infection created by this contaminated foreign body.

NEUTRALIZATION OF VENOM—Venom neutralization is done with polyvalent crotalid antivenin of equine origin manufactured exclusively by Wyeth, Inc. of Philadelphia. Although the administration of antivenin is still the mainstay of definitive therapy, it is one of the most misunderstood and most abused methods of treatment today. Its use must be based upon the clinical judgment of the physician as to the severity of the venenation versus the potential hazards of its use. Table IV is our modification of Wyeth's recommended dosage and method of administration. It disagrees with Wyeth's regimen only on two points. First, grade one bites do not need antivenin. Second, and most importantly, it should be given intravenously only, since an intramuscular injection has an unpredictable and uncontrollable rate and degree of absorption, and studies with radioisotopes have shown that antivenin accumulates

TABLE IV
SUGGESTED GUIDE FOR INITIAL
DOSAGE OF ANTIVENIN
(Modified from Wyeth)

<i>Grade of Envenomation</i>	<i>Administer # of Vials</i>	<i>Preferable Route</i>
0	0	—
I	0	—
II	1-4	IV
III	5+	IV
IV	10-20+	IV

at the site of the bite more rapidly after intravenous administration than after intramuscular administration.¹¹ The initial dose is based upon the degree of venenation, as shown, and subsequent vials may become necessary based upon the clinical response of progression of pain, edema, necrosis, and CNS toxicity. It should be given every 1/2 to 2 hours until all progression ceases. One very important point is that the dose is inversely proportional to the size of the patient, since a small patient will receive a larger envenomation per body weight or surface area from the same snake as would a larger patient.

Since antivenin has been in widespread use, the mortality rate has dropped from 2.6% to 0.28%, but it is not without serious adverse reactions. Since it is derived from equine serum, it will produce, rarely, an immediate anaphylactic reaction or, commonly, a delayed serum sickness. The incidence of serum sickness has been reported to occur from 30% to 75% of all patients receiving antivenin regardless of the route of administration and is directly proportional to the amount of antivenin administered.^{26,27} Local reactions may also occur such as a local delayed serum reaction occurring in the first 24 hours in persons previously or naturally sensitized to horse serum and manifest by progressive edema, erythema, and pruritis from the skin test area. The Arthus phenomenon may also occur at the injection site. It is the result of repeated injections at relatively short intervals (less than 30 days) and is manifest by a local necrotic reaction. Antivenin is available for those persons sensitive to horse serum that is derived from goat serum, but it is not routinely stocked in the Emergency Room and may present a delay in obtaining it. Desensitization to

horse serum may be attempted, but this also leads to a delay in definitive treatment.

MODERATION OF VENOM EFFECTS—The moderation of the effects of the venom is merely an attempt to counteract the multiple toxic manifestations of the poisoning and treating the symptoms manifest by the patient. Analgesics are used for severe pain and also aid in quieting the patient. Tranquilizers and anti-convulsants may become necessary as the CNS irritability increases. To counter the anticoagulant and hemolytic effects of the venom, vitamin K, fibrinogen, and/or whole blood are administered as indicated by the patient's clinical and laboratory profile. Constant cardiac monitoring allows evaluation and correction of any cardiac arrhythmia or failure that may develop.

The development of shock in snake bite victims should be treated in the same manner as hemorrhagic shock, for the basic pathology is the same: a loss of intravascular volume. In snake bite victims, the intravascular fluid is lost into the interstitial space very rapidly due to the alteration of vascular permeability and destruction of intravascular cells and oncotic components (erythrocytes and proteins). Colloid fluids (plasma, whole blood, packed red cells, dextran) is, therefore, the mainstay of fluid replacement, and large volumes may be necessary in the early stages of the disease. Cardiac stimulants must be used with extreme caution due to the possibility of worsening the venom's cardiac arrhythmia potential.

The use of high dose steroids is another controversial mode of therapy. On the one hand, investigators^{28,29} report no effect on morbidity or mortality of steroid treated laboratory animals, and Gennaro,²⁴ using I¹³¹ tagged antibodies, demonstrated that fewer antibodies were localized at the site of injection in steroid treated dogs than in controls. On the other hand, Glass³⁰ has long advocated its use and has shown its ability to reduce local and systemic manifestations in actual bite victims. At present, many physicians recommend the use of one gram of hydrocortisone or its equivalent every 4 to 6 hours for the first 24 hours in those patients with a grade 2 or greater venenation. There is no question, however, of its use in managing shock or serum sickness associated with snake bite or its treatment.

PREVENTION OF COMPLICATIONS—The prevention of complications is concerned primarily with combating infection with antibacterial agents, preventing vascular occlusion by fasciotomy, and reducing the incidence of renal failure by maintaining an adequate diuresis.

Gram negative pathogens, anaerobes and *Clostridium tetanae* have repeatedly been cultured from the wounds, fangs, and snakes' mouths,^{31,32} and therefore a broad spectrum combination of antibiotics such as gentamicin and clindamycin is acceptable. Tetanus prophylaxis is instituted by administering 250 units of tetanus immunoglobulin-human plus 1/2cc of tetanus toxoid.

A fasciotomy should be performed only if signs of vascular occlusion occur in the extremity. This is most likely to occur in the first 4 hours but may occur as late as 48 hours. Dr. Glass³⁰ performs a routine fasciotomy on all grade 3 or greater bites with great success, but most others simply use it as needed.

Adequate intravenous fluids are given to maintain a urine output of greater than 20cc per hour and diuretics are used if necessary. These patients may require tremendous amounts of fluids due to the large fluid loss and sequestration into the local tissue. This diuresis is necessary because there are large amounts of myoglobin, hemoglobin and other tissue breakdown products being presented to the kidneys that are known to produce renal failure secondary to acute tubular necrosis.^{33,34,35}

Another major complication of intraorgan bleeding can best be handled by immediate institution of those measures designed to correct the bleeding disorders produced by the venom.³⁶ If intracerebral hemorrhage occurs it may be manifest only by a lateralization of already present neurological signs, and the physician must be aware of these subtle changes, so that appropriate corrections may be made.

CONCLUSIONS

Table V represents a summary of the first-aid measures that should be instituted on all snake bite victims with a reasonable suspicion of envenomation.

Table VI represents a summary of the hospital care necessary for the proper treatment of a snake bite victim. All patients with suspected envenomation should be observed in a hospital

TABLE V
FIRST AID

Immobilize the patient and bitten part.
Apply venous tourniquet.
Incise and suction wound.
Apply local cooling.
Transport to hospital immediately.

TABLE VI
HOSPITAL CARE

Continuous evaluation and grading
Lab Tests — Drawn immediately
 Type & Crossmatch
 Coagulation studies
 Routine
Local Care
 Antiseptic Cleansing
 Excision and evaluation
 Fasciotomy if necessary
General Care
 Rest and immobilization
 Nothing by mouth
 IV Fluids & Blood
 Analgesics — Sedatives
 Antibacterial agents
 Antivenin
 Treatment of Complications

for the first twenty-four hours. During hospitalization, continuous evaluation and grading are extremely important in that a patient can change from grade I to a grade IV bite within minutes. Immediately upon presentation to the physician and after the diagnosis of envenomation is made, the patient should be placed at rest and a venous tourniquet applied above the area of edema if one is not present. Blood should be drawn immediately for coagulation studies consisting of a platelet count, prothrombin time, partial thromboplastin time, fibrinogen or clot retraction, bilirubin, CBC, electrolytes, blood urea nitrogen, blood sugar, serum creatinine, and type and cross match for 3 to 4 units of whole blood. It is important that this blood be drawn immediately for the presence of venom within the blood may make typing and cross matching extremely difficult. A routine urinalysis, electrocardiogram and stool guaiac should be performed.

The wound should be locally cleansed with an antiseptic solution. Incision and suction may then be performed, but we recommend excision

of the bite area while in the emergency room. Usually no anesthetic is necessary for the venom itself is a very potent anesthetic agent. It is not advisable to inject into the bite area, since this will result in further spread of the venom. The excision can be done easily since the limit of the envenomated area is well demarcated by tissue discoloration. The excision is performed by making a narrow elliptical incision to include the fang marks in the skin. Excision of deeper tissues should be performed to include all necrotic tissue while preserving nerves, tendons and major vessels. If the injection is noted to enter a fascial plane, this is opened only to an extent to allow evaluation of the muscle compartment and its debridement if necessary. Further fasciotomy should be preserved for the operating room after the diagnosis of arterial impairment has definitely been made.

During the first few minutes of a patient's arrival, he should be given antitetanus and antibiotics agents. Analgesics may be necessary to calm the patient, but these should be used with caution so as not to cloud future CNS evaluations. Antivenin should be started at any point in the patient's course that he manifests grade II or greater degree of envenomation. Prior to the administration of antivenin the appropriate sensitivity testing should be performed as recommended in the Wyeth package insert. The antivenin may be administered by direct intravenous injection or by adding it to normal saline for constant *intravenous* infusion *only*.

The physician should continuously be aware of the complications produced by the envenomation as mentioned earlier in this report and the complications of his treatment, and he should be able to counteract these with the appropriate measures at his disposal. As in any complex medical problem a team approach is advisable where consultation is available. Transportation to a center capable of providing the team approach may be done only if appropriate first-aid measures are undertaken and the delay in definitive treatment would not jeopardize the patient's recovery.

Some of the most common errors made in the evaluation and treatment of snake bite victims are outlined in Table VII and should be a constant stimulus to the proper handling of this most complex problem.³⁷

TABLE VII
PITFALLS OF THERAPY

Underestimation of severity
Overtreating Grade 0 or I
Cryotherapy
Failure to recognize shock
Failure to recognize internal hemorrhage
Inadequate antivenin
Failure to use antibacterial agents

SUMMARY

This paper outlines a review of the approach to the diagnosis and treatment of Pit Viper bites. Information is provided to correctly identify the offending snake and to determine if envenomation has occurred. The biochemistry and pharmacology of Pit Viper venoms is presented in relation to their toxic effects on the various organ systems. A rationale of therapy based upon this toxicity is offered with a discussion of some of the more controversial modes of treatment.

BIBLIOGRAPHY

- Parrish, H. M.: Incidence of Treated Snake Bites in the United States. *Public Health Reports*, Vol. 81, No. 3, p. 269, 1966.
- Conant, R.: *A Field Guide to Reptiles and Amphibians of Eastern North America*. Boston, Houghton-Mifflin Co., 1958.
- Minton, S. A.: Identification of Poisonous Snakes. *Clinical Toxicology*, Vol. 3, No. 3, p. 347, 1970.
- Kochva, E. and Ganns, C.: Salivary Glands of Snakes. *Clinical Toxicology*, Vol. 3, No. 3, p. 363, 1970.
- McCullough, N. C. and Genarro, J. F.: Treatment of Venomous Snake Bites in the United States. *Clinical Toxicology*, Vol. 3, No. 3, p. 483, 1970.
- Sowder, W. T. and Gehres, G. W.: Snake Bite Myths and Misinformation. *Journal of the Florida Medical Association*, Vol. 55, No. 4, p. 319, 1968.
- Jimenez-Porras, J. M.: Biochemistry of Snake Venoms. *Clinical Toxicology*, Vol. 3, No. 3, p. 389, 1970.
- Russell, F. E. and Puffer, H. W.: Pharmacology of Snake Venoms. *Clinical Toxicology*, Vol. 3, No. 3, p. 433, 1970.
- Wood, J. T., et al.: Treatment of Snake Venom Poisoning with ACTH and Cortisone. *Virginia Medical Monthly*, 82:130, 1955.
- Parrish, H. M.: Poisonous Snakebites Resulting in Lack of Venom Poisoning. *Virginia Medical Monthly*, 86:396, 1959.
- McCullough, N. C. and Genarro, J. F., Jr.: Evaluation of Venomous Snake Bite in the Southern United States From Parallel Clinical and Laboratory Investigation: Development of Treatment. *Journal of the Florida Medical Association*, Vol. 49, No. 12:959, 1963.
- Andrews, C. E., et al.: Venomous Snake Bite in Florida. *Journal of the Florida Medical Association*, Vol. 55, No. 4:308, 1968.
- McCullough, N. C.: Emergency Room Treatment of Venomous Snake Bite. *Journal of the Florida Medical Association*, 55:317, 1968.
- Rhoten, W. B. and Genarro, J. F., Jr.: Treatment of the Bite of a Mojave Rattlesnake. *Journal of the Florida Medical Association*, Vol. 55, No. 4:324, 1968.
- McCullough, N. C. and Genarro, J. F., Jr.: Diagnosis, Symptoms, Treatment and Sequelae of Envenomation by *Crotalus Adamanteus* and Genus *Ancistrodon*. *Journal of the Florida Medical Association*, Vol. 55, No. 4:327, 1968.
- Snyder, C., et al.: A Definitive Study of Snake Bite. *Journal of the Florida Medical Association*, Vol. 55, No. 4:330, 1968.
- Russell, F. E.: Clinical Aspects of Snake Venom Poisoning in North America. *Toxicon*, Vol. 7:33, 1969.
- Parrish, H. M. and Hayes, R. H.: Hospital Management of Pit Viper Venomations. *Clinical Toxicology*, Vol. 3, No. 3, p. 501, 1970.
- Allen, F. M.: Observations on Local Measures in the Treatment of Snake Bite. *American Journal of Tropical Medicine*, 19:393, 1939.
- Shannon, F. A.: Venoms (E. E. Buckley and N. Porges, editors). *American Association for Advancement of Sciences*, Washington, D.C., 1956, p. 405:512.
- Wood, J. T.: Critique on "L-C" Treatment of Snakebites. *Southern Medical Journal*, 49:749, 1956.
- Ya, P. M. and Perry, J. F., Jr.: Experimental Evaluation of Methods for Early Treatment of Snake Bite. 47:975, 1960.
- Willson, P.: Snake Poisoning in the United States: Study Based on Analysis of 740 Cases. *Arch. Internal Medicine*, 1:516, 1908.
- Genarro, J. F.: Venomous and Poisonous Animals and Noxious Plants of the Pacific Region (H. L. Keegan and W. V. McFarlain, editors). Pergamon, Oxford, p. 427-449, 1963.
- Huang, T. E., et al.: The Use of Excisional Therapy in the Management of Snake Bite. *Annals of Surgery*, Vol. 179, No. 5, p. 598, 1974.
- Kojis, F. G.: Serum Sickness and Anaphylaxis: Analysis of Cases of 6211 Patients Treated with Horse Serum for Various Infection. *American Journal of Diseases in Childhood*, Vol. 64, p. 93, 1942.
- Reid, H. A., et al.: Specific Antivenon and Prednisone in Viper Bite Poisoning: Control Trial. *British Medical Journal*, Vol. 2:1378, 1963.
- Schlotter, W. H. A.: Antihistamine, ACTH, Hydrocortisone, and Anesthetics In Snake Bite. *American Journal of Tropical Medicine*, Vol. 3, p. 1083, 1954.
- Clark, R. W.: Cryotherapy in Corticosteroids in the Treatment of Rattlesnake Bite. *Military Medicine*, Vol. 136, p. 42, 1971.
- Glass, T. G., Jr.: Early Debridement in Pit Viper Bite. *Surgery Gyn. and Obstet.*, Vol. 136, p. 744, 1973.

31. Parrish, H. M., et al.: North American Pit Vipers: Bacterial Flora of the Mouths and Venom Glands. *Virginia Medical Monthly*, Vol. 83, p. 383, 1956.
32. Fisher, F. J., et al.: Antivenon and Antitoxin in the Treatment of the Experimental Rattlesnake Venom and Toxication. (*Crotalus adamanteus*.) *American Journal of Tropical Medicine*, Vol. 10, p. 75, 1961.
33. Chugh, K. S., et al.: Acute Renal Failure Following Snakebite. *American Journal Tropical Med. Hyg.*, 21(4):692-7, July, 1975.
34. Sitprija, V., et al.: Further Observations of Renal Insufficiency in Snake Bite. *Nephron*, 13(5):396-403, 1974.
35. Seedat, Y. K., et al.: Acute Renal Failure Due to Proliferative Nephritis from Snake Bite Poisoning. *Nephron*, 13(6):455-63, 1974.
36. Hasiba, U., et al.: DiC-Like Syndrome After Envenomation by the Snake. *Crotalus horridus horridus*. *New England Journal of Medicine*, 292(10):505-7, 6 March 1975.
37. Parrish, H. M.: Pitfalls in Treating Pit Viper Bites. *Medical Times*, Vol. 95, No. 8:809, 1967.
38. Arnold, R. E.: Results of Treatment of *Crotalus* Envenomation. *American Surgeon*, p. 643, October, 1975.
39. Reid, H. A.: The Principles of Snake Bite Treatment. *Clinical Toxicology*, Vol. 3, No. 3, p. 473, 1970.
40. Parrish, H. M.: Analysis of Arkansas Snakebites. *Journal of Arkansas Medical Society*, Vol. 61, No. 6, p. 176, 1964.
41. Parrish, H. M.: A Study of Snakebites in Colorado. *Rocky Mountain Medical Journal*, Vol. 61, p. 41, 1964.
42. Russell, F. E., et al.: Snake Venom Poisoning in the United States: Experiences With 550 Cases. *Journal of American Medical Association*, Vol. 233, No. 4, p. 311, 1975.
43. Mosely, T.: Coral Snakebite: Recovery Following Symptoms of Respiratory Paralysis. *Annals of Surgery*, Vol. 163, No. 6, p. 943, 1966.
44. Minton, S. A., Jr.: Snakebite — An Unpredictable Emergency. *Journal of Trauma*, Vol. 11, No. 12, p. 1053, 1971.
45. Sutherland, S. K., et al.: Human Snake Victims: The Successful Detection of Circulating Snake Venom by Radio Immunoassay. *Medical Journal of Australia*, Vol. 1, p. 27, January 11, 1975.
46. Sutherland, S. K.: Treatment of Snakebite in Australia: Some Observations and Recommendations. *Medical Journal of Australia*, Vol. 1, p. 30, January 11, 1975.
47. Bryant, J. M. and Bryant, M. F.: Poisonous Snakebites in Georgia. *Journal of Medical Association of Georgia*, Vol. 64, p. 99, 1975.
48. Trethewie, E. R.: Detection of Snake Venom in Tissue. *Clinical Toxicology*, Vol. 3, No. 3, p. 445, 1970.
49. Russell, F. E. and Emerz, J. A.: Effects of Corticosteroids on Lethality of *Ancistrodon Contortrix* Venom. *American Journal of Medical Sciences*, Vol. 241, p. 507, 1961.
50. Snyder, C. C., et al.: The Snakebitten Hand. *Plastic and Reconstructive Surgery*, Vol. 49, p. 275, 1972.





ELECTROCARDIOGRAM

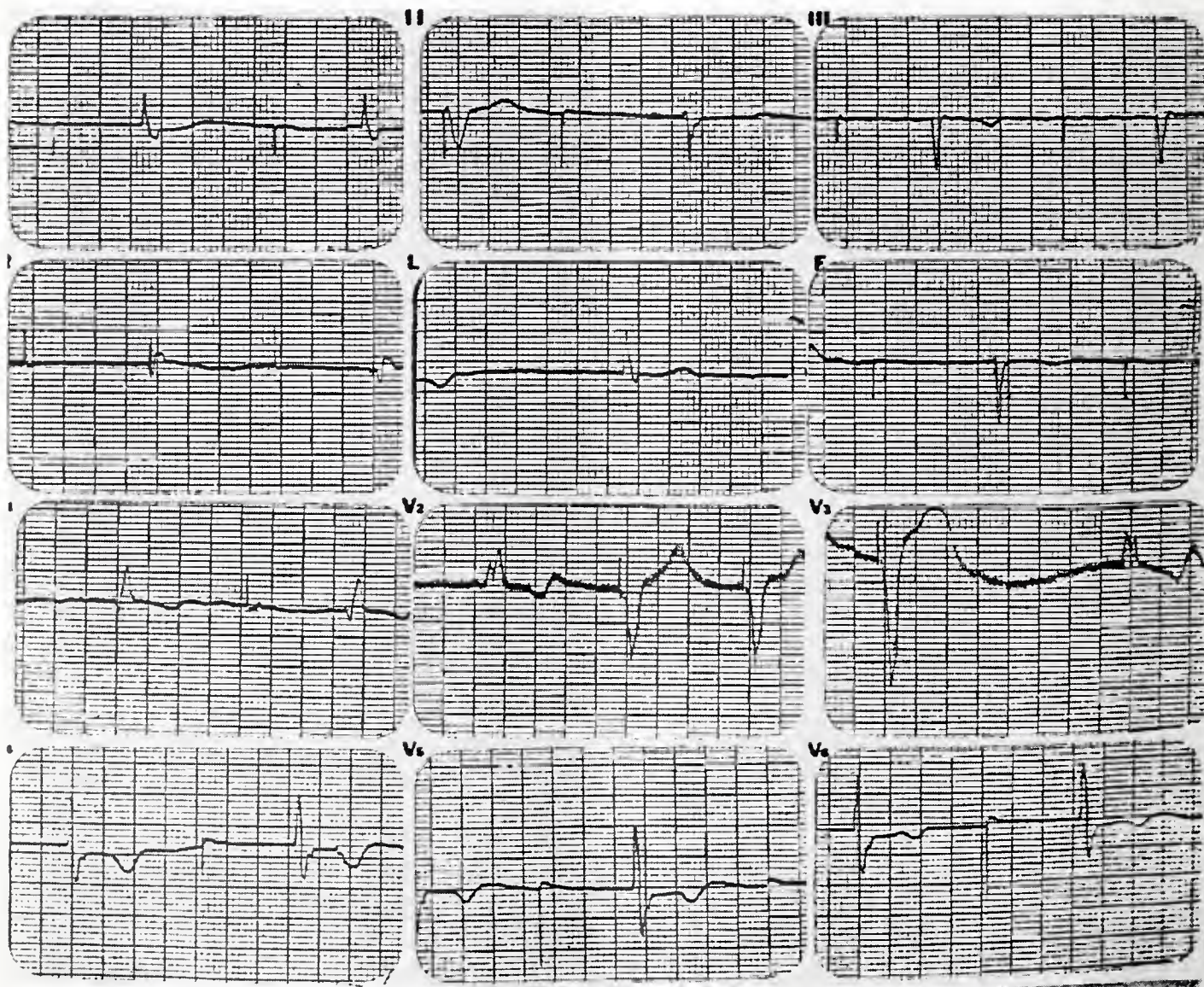
OF THE MONTH



The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 90)

An 85-year-old man was admitted because of a slow heart rate and symptoms of congestive heart failure. Permanent transvenous pacing was instituted. Three weeks later his pulse was noted to be slow and the following ECG was obtained.



Malcolm B. Pearce, M.D.
Associate Professor of Medicine
University of Arkansas for Medical Sciences
Little Rock, Arkansas 72201



PUBLIC HEALTH AT A GLANCE

Bats and Their Control

Miss Charlotte Mills, Sanitarian II*

Bats are the only true flying mammals. This characteristic, combined with their nocturnal habits, has been largely responsible for their association with superstition and folklore.

Although public health personnel are concerned with their control, bats are insectivorous, playing a valuable part in the natural environment.

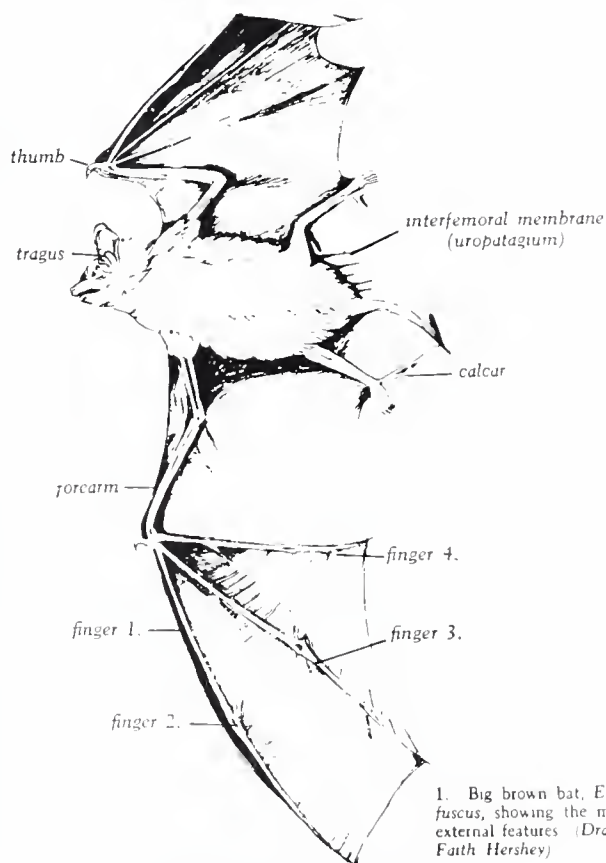
Bats vary in color, size and peculiarities. They have small eyes and poor vision. The ears contain a well developed tragus, a fleshy projection rising from the inner base of the ear. Bats use an echo-location system to guide themselves in flight. They emit high-pitched squeaks which are reflected back from objects in their path and picked up by their ears.

The fore limbs have elongated finger bones which serve to spread and manipulate the wing. The flying surface, composed of the wings and the interfemoral membrane, is made of a double layer of skin forming a continuous membrane that encompasses the fore limbs, hind limbs and the tail. The hind limbs are attached at the hip, so that with the five toes turned outward, the knee is directed backward and the bottom of the foot faces forward. This modification facilitates the bat's alighting upside down and hanging by its toes. The calcar, a long spur on one of the ankle bones, projects toward the tail and helps to support the interfemoral membrane.

Three families of bats occur in the United States. These are the Phyllostomatidae, leaf-nosed bats, Vespertilionidae, evening bats, and Molossidae, free-tailed bats.

Leaf-nosed bats are tropical and characterized by a tail extending beyond the membrane between the hind legs. They are found in Cali-

fornia and the Southwest. Evening bats are the most numerous and widespread. Among these are the Little Brown Bat, Big Brown Bat and Pipistrelle. These species have caused the majority of human exposure to known rabid bats.



1. Big brown bat, *Eptesicus fuscus*, showing the major external features (Drawing by Faith Hershey)

Bats seek shelter in a variety of places during the daytime. In the summer bats inhabit buildings, usually a hot attic, beneath bridges, in caves and mines, under bark, in rock crevices and a few roost among the foliage of trees. Bats spend their day hanging quietly in their normal resting position, head downward.

Bats usually are found close to a lake or stream. They prefer to feed over water.

As evening approaches, bats become active, squeaking and flying inside, if the shelter is

*Arkansas Department of Health, Division of Vector Control and Recreation, 4815 West Markham, Little Rock, Arkansas 72201.

large enough. They begin to emerge at late dusk.

Upon leaving the roost, most bats fly to a nearby body of water to drink. They drink while in flight. A feeding period of approximately an hour follows. Bats often repeat their flight patterns during feeding. After the first feeding, bats move to their night roost. A second feeding occurs just before daylight.

Food consists of a variety of insects. Insects are located by a echo-location system. They are caught with a wingtip, transferred to a cap formed by the interfemoral membrane. Small insects are eaten in flight. Large insects are held in the mouth and eaten when the bat alights.

By daybreak, bats have returned to their daytime roost. Before entering the roost, they make many passes at the entrance. As they approach the entrance they defecate.

During the winter most bats hibernate in caves and mines characterized by high humidity and temperatures above freezing. Some species hibernate in buildings. Hibernation season in the northernmost latitudes is September through May. In the southern states, hibernation season may be sporadic with bats arousing to feed during warm spells. Bats deposit layers of fat amounting to about a third of their weight before entering hibernation.

Bats mate in the fall and winter. The sperm remains in the uterus of the female throughout the winter. Fertilization occurs in the spring when the bats emerge from hibernation. Parturition varies with the species and climate. It ranges from April through July. Most bats give birth to a single young.

Most species establish maternity colonies in buildings and similar dark, warm retreats. As parturition begins, the female hangs head upward and the emerging fetus is received in a basket formed by the interfemoral membrane. Those species with poorly developed interfemoral membranes give birth hanging head downward. The very young crawls to the mother's nipple and remains attached throughout the day.

The young are left in the colony when the mother emerges in the evening to feed. Mothers return throughout the night to nurse the young. As they mature, the mothers return less frequently.

Young bats are large and well developed at birth. Most are able to fly within three weeks.

Public health agencies are concerned with diseases transmissible to man by bats. Among these are rabies, histoplasmosis, listeriosis, Venezuelan Equine Encephalitis (VEE), Eastern Equine Encephalitis (EEE), Western Equine Encephalitis (WEE) and St. Louis Encephalitis (SLE). Rabies can occur in bats without them showing any symptoms. Bats seem to be the only animals that can contract rabies and survive.

Bat control is best determined through careful consideration of the following factors: bat identification, habits, odor, droppings, disease potential, ectoparasites, population size and nuisance potential. Control of ectoparasites must accompany any bat control program.

Currently, the Environmental Protection Agency (EPA) has no registered pesticide for bat control. The only approved method of bat control is mechanical exclusion or bat-proofing.

Bat-proofing is the best control method. The first step is locating the openings where bats may have entered. Close all but a few main entrances, wait a few days to accustom the bats to leaving by these; then at evening when all the bats have left the roost, close all remaining openings. No opening should be larger than 1/4 inch in diameter. The structure should be checked for several evenings to determine if bats are still present. If so, any remaining openings must be found and bat-proofed. Bat-proofing is best accomplished in early spring and fall.

If bats are flying about in a building during the daytime, open all windows and doors. The bats will detect the air movement and fly out. Capturing or killing a bat in flight is best achieved through the use of a fish landing net or a tennis racket.

Dosages of naphthalene (moth flakes) at the rate of 5 to 10 pounds per average attic and glass fiber insulation material blown into spaces occupied by bats offer temporary control. These efforts must be accompanied by bat-proofing.

Only after the presence of rabies has been established can State Public Health officials apply to the Environmental Protection Agency for permission to use DDT or other control agents.

Persons who run a high risk of repeated ex-

posures to rabies should be protected by pre-exposure immunization. Pre-exposure immunization consists of 3 injections of a potent anti-rabies vaccine, at 5-7 day intervals, followed by a booster injection of vaccine 1 month after the last dose.

Any person bitten by a possibly rabid animal

should contact the Arkansas Department of Health, Dr. Harvie Ellis, telephone 661-2264, to determine if rabies prophylaxis is indicated. Any bat or other animal causing a bite should be captured with brain intact for examination by the Public Health Laboratory using the fluorescent antibody technique.



EDITORIAL

Metabolism — Here and There

Alfred Kahn, Jr., M.D.

The body contains numerous stimulatory and inhibitory chemicals. The delicate balance of these substances is what might be termed homeostasis. These balances are dynamic, not static. Generally, our understanding of the stimulatory substances has been better because the effects of them are more obvious. As applied to gastro-enterology the stimulatory effects have been widely known and studied as gastrin, etc. One of the inhibitory hormones has been the subject of a report by Cataland, Crockett, Brown and Mazzaferri (Journal of Clinical Endocrinology and Metabolism, Volume 39, page 223, August 1974) which was entitled "Gastric Inhibitory Polypeptide (GIP) Stimulation By Oral Glucose In Man." G.I.P. is a powerful inhibitor of hydrochloric acid secretion by the stomach; it has synthesized in pure form; G.I.P. opposes the action of histamine, insulin induced hypoglycemia, and pentagastrin. The authors state that this substance increases insulin secretion; it rises to very high levels after meals. It was administered by them to twenty-five healthy humans. The subjects were given 75 grams of glucose. At sixty minutes after the glucose ingestion, the G.I.P. levels rose to an average of about 700

pg/cc from a low of about 350; the blood glucose was maximal at thirty minutes and was about 120 mg.%; the blood insulin level was maximal also at thirty minutes with a level of about 80 uV/cc. On the other hand, intravenous glucose failed to produce a stimulatory response on G.I.P. and its effect on the insulin level was minimal. Cataland, et al., feel that G.I.P. may be one of the most important hormones in the so-called enteroinsular axis.

"Factors Influencing the Prognosis of Vascular Disease in Insulin Deficient Diabetics of Long Duration" is the basis of a report by F. I. R. Martin and G. L. Warne (Metabolism, Volume 24, page 1, January 1975). They followed fifty-one insulin dependent diabetics for seven years. The subjects were non-obese. The mean age when the study began was 42.1 years and the subjects had had diabetes about twenty-five years. During the study, ten subjects died from vascular disease; three died from other causes. Their observations indicate that the younger diabetics had a marked progression of small vessel disease — this contrasted with arterio-sclerosis which attacked all age groups. Of particular interest was the fact that it again demonstrated insulin in-

sensitive diabetics have a higher incidence of vascular disease. High triglycerides carried a much higher risk of vascular disease than did high cholesterol; there was a poor relationship in this study between vascular disease and level of fasting blood sugar, age, and duration of diabetes mellitus.

Various types of hypogonadism have been discovered in recent years including primary types, pituitary types, and hypothalamic types due to failure of the releasing hormones to stimulate the pituitary appropriately. Of considerable interest in this regard is some recent work by Yoshimoto, Moridera, and Imura (New England Journal of Medicine, Volume 292, page 242, January 30, 1975) on "Restoration of Normal Pituitary Gonadotrophin Reserve by Administration of Luteinizing-Hormone-Releasing Hor-

mone in Patients with Hypogonadotrophic Hypogonadism" The releasing hormone from the hypothalamus for the pituitary luteinizing hormone has been synthesized and is abbreviated LH-RH. Function tests were performed before and after long term administration of LH-RH. The subjects consisted of nine normal controls and nine patients with isolated gonadotrophin deficiency; also studied were cases of anorexia nervosa and patients with multiple pituitary hormone deficiencies. The authors' studies indicate that "repeated intravenous infusions of LH-RH restored pituitary responsiveness to LH-RH in many patients with isolated gonadotrophin deficiency, anorexia nervosa, and organic hypothalamo-pituitary lesions." This responsiveness recurred in five to seven days. The optimum dosages for treatment have not been worked out.



MEDICINE IN THE



THE MONTH IN WASHINGTON

The American Medical Association has supported President Ford's decision to undertake a mass immunization program against the swine influenza virus.

The President will ask Congress for \$135 million to undertake the program in an attempt to stave off a possible epidemic of the virus this coming fall and winter.

The AMA said it felt the President's decision was "absolutely correct."

Most of the medical community seemed to agree with the Ford decision, though many pointed out it was a tough one. "This is a most difficult decision," said Albert B. Sabin, partner in the development of the polio vaccines, "It has an aspect of — you're damned if you do, and you're damned if you don't."

AMA leadership is scheduled to appear before

both the Senate and House in support of the Ford decision.

The AMA statement in full:

"The American Medical Association supports the decision of President Ford to undertake a massive national immunization campaign against the swine influenza virus. Under the circumstances, we believe his decision is absolutely the correct one.

"The AMA stands ready to assist in the national campaign in any way possible, including organizing the medical profession to insure that every person who wants to be vaccinated will be — regardless of ability to pay.

"We speak for the medical profession in committing the doctors of this nation to make whatever efforts are necessary to vaccinate the entire population. It will not be easy, but it can and must be done."

* * * *

A federal-state campaign to reduce Medicaid fraud and abuse has been launched by Health, Education, Welfare Secretary David Mathews.

A team of federal and state Medicaid examiners will begin its work in Massachusetts soon at the invitation of Gov. Michael Dukakis. Another team will begin operations in June in Ohio at the request of Gov. James Rhodes.

HEW said it plans to focus the joint effort on states with the largest Medicaid programs. With reviews in at least five states this year.

The federal-state examiners will have two basic objectives, Secretary Mathews said. They will identify fraud and abuse and refer specific violations for possible prosecution. They will help states develop efficient program management and abuse detection systems.

HEW has developed a computerized Medicaid management information system (MMIS) to aid in the processing of claims. MMIS will alert a state if, for example, a patient was in a hospital the same day a physician claimed to have treated him at home, or if a pregnancy test was ordered on a male, HEW said.

HEW is assembling a Medicaid fraud and abuse unit of 108 people in the Medical Services Administration, and a criminal investigative branch of 74 investigators which will report directly to Under Secretary Marjorie Lynch.

HEW said it will coordinate its Medicaid investigative efforts with the Department of Justice and the Internal Revenue Service.

Mathews said he plans to invite representatives of national health services provider organizations to Washington shortly to solicit their ideas and to urge them to undertake a self-policing program and to assist the states in identifying potentially fraudulent providers.

"We recognize that the overwhelming majority of health care providers are ethical and professional," Mathews said. "They share our desire to bring efficiency to Medicaid in its management and in the quality of health care it offers. We want to ferret out the comparative few who break the law. We believe the health professions organizations will give us their enthusiastic support in this effort."

Heading the HEW office of investigators will be John J. Walsh, senior investigator for the Senate permanent subcommittee on investigations and former FBI agent.

* * * *

Major changes in the Medicare-Medicaid programs are called for in proposed legislation introduced by Sen. Herman Talmadge (D.-Ga.). The proposal would establish incentives for physicians to accept assignment; restrict payment methods for hospital-based specialists; mold Medicare, Medicaid, and the Bureau of Quality Assurance into a single agency; and set up reimbursement incentive programs for hospitals.

Talmadge, Chairman of the Senate Finance Subcommittee on Health, said in a Senate speech "either we make Medicare and Medicaid more efficient and economical or we reduce benefits. We have just too many worthwhile demands on the limited federal dollar to be able to allocate increasingly disproportionate amounts to Medicare and Medicaid."

Hearings will be held sometime this year, Talmadge promised, but he set no date. He stressed that the proposals are not "frozen in concrete" and are subject to change following the hearings according to the testimony received.

The influential Senator surprised the health field last year when he made a Senate speech outlining the ideas finally put in legislative form recently. Many of the recommendations are controversial, especially the reorganization of the health activities at HEW that are bound to be opposed by the administration and the restrictions on payment of hospital-based specialists.

Talmadge describes the specialist provision as follows:

"Under the legislation specialists — such as certain radiologists, pathologists, and anesthesiologists — would be eligible under Medicare-Medicaid for fee-for-service, or other reasonable fixed compensation agreed upon with a hospital, for services which they personally render or which are provided under their direct personal supervision. For their administrative and general supervision of an X-ray, laboratory, or anesthesia department, the hospital could compensate them on a basis comparable to what a salaried radiologist, pathologist or anesthesiologist receives for comparable time and work. No percentage, lease, or direct billing arrangements would ordinarily be recognized for Medicare or Medicaid reimbursement purposes . . ."

Physicians who choose assignments, to be called Participating Physicians, would be able to submit simplified and fewer claims and re-

ceive a \$1 per patient bonus for most office visit charges. Medicaid would have to pay not less than 80 percent of the Medicare reasonable charge for non-surgical care. As a means of encouraging physicians to move into physician shortage areas, new physicians could establish customary charges at the 75th percentile of prevailing charges in the locality, rather than the present 50 percent.

A single administration for health care financing (CAPS) would contain the present Medicare, Medicaid and Bureau of Quality Assurance Agencies to be headed by an Assistant HEW Secretary. Within this Agency a central fraud and abuse unit headed by an inspector general would monitor performance and violations of law.

The bill would abolish the Health Insurance Benefits Advisory Council.

A new reimbursement system is designed to reward hospitals with less than average operating costs and penalize those with higher costs.

* * * *

James Cowan, M.D., has resigned as Assistant Secretary for Defense for Health and Environment. Among those reported under consideration as Cowan's successor is Malcolm Todd, M.D., Immediate Past President of the American Medical Association. Dr. Cowan, former New Jersey Commissioner of Health, is understood to be contemplating an entry into politics in his home state, possibly running for the GOP nomination for the Senate.

* * * *

Now passed by both Houses and awaiting conference, medical device legislation has made members of that industry predict a bullish future.

The legislation will add \$250,000 to \$700,000 in costs to products requiring pre-market approval. The hottest medical device will continue to be the pacemaker. Sales are expected to increase at an average annual compound rate of 9 percent. Another big item is the cat (CAPS) scanner. Manufacturers predict 3,000 placements by 1980. The use of renal dialysis is expected to triple by 1980. Catastrophic or comprehensive national health insurance will also help the industry. Makers of orthopedic and surgical appliances, clinical diagnostics, medicinals, and pharmaceuticals all expect steady growth. Drug

companies predict biggest growth in anti-arthritis sales.

The legislation provides three categories for devices — class I, general controls; class II, performance standards; and class III, premarket approval, the general controls give FDA authority to move against devices that are misbranded or badly-made and require their registration as if they were drugs. FDA can exempt some devices from this control, such as custom devices not intended for general sale.

Class II devices would be required to meet certain manufacturing standards.

The class III classification involves pre-market clearance for new products and essentially the same type of clearance for existing products. The House Commerce Committee report said it expected that intrauterine devices would fall in the class III category.

* * * *

The Senate Labor and Public Welfare Committee has approved legislation subjecting clinical laboratories in both intrastate and interstate commerce to federal licensure and standards requirements.

The revision of the Clinical Laboratories Improvement Act (CLIA) would cover labs operating only within one state for the first time, and give HEW a stronger role in supervising the nation's clinical laboratories.

Individual physicians who perform tests solely in connection with treatment of their own patients could be exempted from the law's requirements if HEW wished.

The measure, expected to be voted upon soon by the full Senate, provides leeway for continuation of existing accreditation and certification programs by the Joint Commission on Accreditation of Hospitals and the College of American Pathologists (CAP). AMA and the CAP had urged Congress to allow these activities to continue.

One provision adopted by the Committee would require disclosure of fees and contractual relationships between labs and physicians using their services.

The House Commerce Subcommittee on Health is slated to start hearings soon on similar legislation.

* * * *

The government's controversial plan to limit

reimbursement for some Medicare-Medicaid drugs to the lowest cost available is slated to take effect soon (April 26) despite opposition from pharmaceutical and medical groups and questions raised by lawmakers.

HEW Secretary David Mathews said the disputed proposal inaugurated by his predecessor, Casper Weinberger, will be implemented on schedule. "We will never find out what will happen until we do it," Mathews said in a letter to G. Joseph Stetler, President of the Pharmaceutical Manufacturers Association (PMA).

The PMA and the AMA have filed suit against the proposed Maximum Allowable Cost (MAC) regulations. The AMA contends the plan violates patients' rights to seek the best medical care according to their physicians' best judgment in prescribing.

Rep. Daniel Flood (D.-Pa.), Chairman of the House Appropriations Subcommittee on Health, recently asked Mathews "what's magic about now? The states are not ready; why can't you wait to prove the soundness of the program?"

In his letter to Stetler, Mathews said that if MAC proves detrimental to drug development or distribution, "it will be changed or dropped."

Federal administrative costs were estimated at more than \$2 million a year by Mathews. States will have to pay an initial \$3 million.

* * * *

The American health care system is due for tight government control because costs are becoming more than the economy can bear.

This was the grim message of speaker after speaker at a Washington, D. C., conference on the economic impact of health care legislation. The meeting was sponsored by Arthur D. Little, Inc., a Cambridge, Mass., consulting and research outfit.

"The cost is becoming prohibitive," declared Charles Edwards, M.D., former Assistant HEW Secretary for Health. "The U. S. health care system is headed toward fundamental changes that are certain to occur and sooner than most expect." Dr. Edwards warned he predicted health care will cost \$135 billion next year; \$600 for every person in the country.

Declaring that this decade for physicians could be called the "showdown seventies," Malcolm C. Todd, M.D., Immediate Past President of the

AMA told the conference of business and health leaders that he hoped for a "proper accommodation" between the medical profession and the federal government. Unless a pluralistic system is retained, Dr. Todd warned, "federally inspired chaos" could emerge.

"There could be a vicious circle . . . with programs foundering on their own shortcomings and blunders . . . and government blaming doctors and hospitals for the failures in order to justify even more repressive programs," he said.

A study was released by the Arthur D. Little firm estimating that the passage of national catastrophic health insurance would add \$4.5 billion to 1980 expenditures for principal health care products and services. If no new national health coverage becomes effective, spending for health care is expected to grow at an average annual rate of four percent over the next five years, or from \$98.8 billion in 1975 to \$112 billion in 1980, the study said.

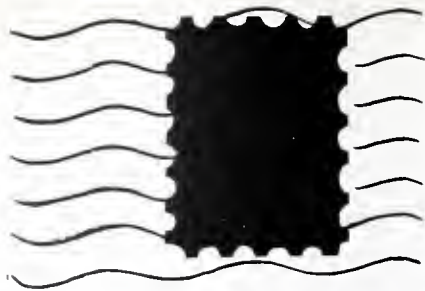
Enactment of national comprehensive health insurance, which Little said is not regarded as very likely to happen before 1980, would increase health care spending by 12 percent or \$13.6 billion, for an annual total of \$125.6 billion in five years.

Commenting on the study, Dr. Todd said "it confirms that any of the national health insurance programs before the Congress will result in greater utilization by patients and thus increased expenditures."

Lawrence Hill, Executive Vice President of the American Hospital Association, said that the future holds "more expenditures, rising costs, concern with those expenditures, and costs leading to attempts to control by price controls and by tinkering with the delivery system."

Hill foresaw a collision between rising costs and "capped" prices. Hospitals, he said, might have little option but to limit services. "Lines of doctors and patients will form and the hospital will patrol these, admitting as resources allow."

"The price-cost collision will cause some rationing which, in turn, will cause internal adjustments concerning how physicians use hospital facilities. The community relations implications in rationing are obvious, and, of course, at this point in time we simply do not know how to ration health care because we never have tried before."



LETTERS TO THE EDITOR

Gentlemen:

Recent disclosures by the Congress and the Columbia Broadcasting System television network program "Sixty Minutes" have placed emphasis on what we believe to be the practices of a small segment of the medical community. We refer to the practice of physicians receiving rebates from independent laboratories. The amount of the rebate is usually determined by the volume of test referrals made to the laboratory. Although only a small number of individuals may be involved in such practices, the criticism tends to be directed toward everyone associated with this area of health care.

It is possible that it is not generally known that this practice is in violation of Medicare law (42 United States Code 1395nn (b)) which provides:

"whoever furnishes items or services to an individual for which payment is made or may be made under this subchapter and who solicits, offers, or receives any (1) kickback or bribe in connection with the furnishing of such items or services or the making or receipt of such payment, or (2) rebate of any fee or charge for referring any such individual to another person for the furnishing of such items or services, shall be guilty of a misdemeanor and upon conviction thereof shall be fined not more than \$10,000 or imprisoned for not more than one year, or both."

We in Medicare are continually expanding our efforts to prevent and detect fraud or abuse in the program, but our efforts supplement rather than replace the professional responsibility of the medical profession to safeguard the ethics of its members. We believe the state medical societies can, and do, make a real contribution to the prevention of Medicare fraud and abuse. It is with this in mind that we would like to enlist the aid of your society in advising

the membership of the illegalities of rebate arrangements, the legal consequences of such practices, and of our full intention to seek prosecution in any cases which come to light.

In addition, we would appreciate your encouraging your constituents (or members) to report offers tendered to engage in the aforementioned practices. We are enclosing a listing of Bureau of Health Insurance Regional Representatives who may be contacted with reports of this nature.*

Sincerely yours,
Thomas M. Tierney
Director
Bureau of Health Insurance
Social Security Administration
Department of Health,
Education and Welfare
Baltimore, Maryland 21235

*Mr. Jerry Sconce, 1200 Main Tower Building, Dallas, Texas 75202; 214-749-3921. (Dallas Region — Arkansas, Louisiana, New Mexico, Oklahoma, Texas.)



THINGS TO COME

MAMMOGRAPHY TRAINING FOR THE EARLY DIAGNOSIS OF BREAST CANCER

SPONSORS:

The University of Texas System Cancer Center M. D. Anderson Hospital and Tumor Institute, Houston, Texas; National Cancer Institute; American College of Radiology.

LOCATION:

Mammography Conference Room (Room 257, near second floor X-ray waiting room), Department of Diagnostic Radiology, M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, Texas.

FEE:

None.

DESIGNED FOR:

Radiologists, residents in radiology, radiologic technologists. Other physicians and interested medical personnel may monitor the course on a space available basis.

ENROLLMENT:

Maximum of four physicians and four technologists per course. When possible, radiologists are encouraged to bring their mammography technologists for the same instruction period.

DURATION:

Five continuous days, Monday through Friday. Eight hours of instruction per day, 40 total course hours.

DATES:

The course will be offered the second or third week of each month, variations determined by conflicting national or local conventions, holidays, etc. Attempt will be made to schedule course dates several months in advance. Present course schedule includes weeks beginning on the following Mondays: June 14th and July 12th.

TIME:

Course begins at 8:00 a.m. on Monday morning of the assigned course date.

CREDIT:

Category 1, AMA Physician's Recognition Award, American College of Radiology. Approved for ECE points by ASRT.

CURRICULUM:

Separate curriculum for radiologists and radiologic technologists. Curriculum and schedule may be individually modified to accommodate enrollee's previous experience and future needs.

CONDUCTED BY:

David D. Paulus, M.D., Mammography Training Director; Susan K. Sprinkle, R.T., Mammography Technical Coordinator.

TEACHING METHODS:

Audiovisual materials, lectures, live clinic demonstrations, participation in routine patient examinations, introductory teaching sets, review of extensive proven case files in film mammography, xeroradiography and thermography, and daily round table discussions of problem cases.

APPLICATIONS:

Requests for a specific instruction period will be accepted on a first come, first served basis and should include an alternate date in case the first course preference is filled. Applications are requested to include a brief description of previous experience in length of time and number of mammograms performed or interpreted (estimate number per week or month over a period

of how long), and what the primary interest will be, i.e., film mammography, xeroradiography and/or thermography. This will enable us to better prepare individual schedules. Prompt notification of cancellation will be greatly appreciated.

ACCOMMODATIONS:

Numerous hotels and motels are located within a short walking distance or in the vicinity of the Medical Center, many providing free transportation to and from the various hospitals in the Center. We will be happy to assist in making desired accommodations. Visitors will be responsible for their own expenses. Shopping and tour information will be available for accompanying families.

CONTACT:

For further information or assistance please send inquiries to:

Dawn Nevling Shull, Project Coordinator
Department of Diagnostic Radiology
The University of Texas System Cancer Center
M. D. Anderson Hospital and Tumor Institute
6723 Bertner Drive
Houston, Texas 77030
Telephone (713) 792-2712

**POSTGRADUATE EDUCATION FOR
PEDIATRICIANS AND OBSTETRICIANS**

The Maternal and Child Health Program of the University of California School of Public Health at Berkeley announces postgraduate programs for pediatricians and obstetricians in the field of Maternal and Child Health and Family Planning. Program areas available at the present time include nine-month programs in Maternal and Child Health, in the Health of the School-Age Children and Youth, and Day Care and the Preschool Child. Twenty-one month programs in Care of Handicapped Children and Comprehensive Health Care, and a thirty-three month program in Perinatology are also available. These programs all lead to the degree of Master of Public Health, and tax-exempt Fellowship support is available.

Applications are now being accepted for the group entering September, 1977. For information, write to Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California 94720.



PERSONAL AND NEWS ITEMS

Dr. C. Lewis Hyatt Memorial Fund

A memorial fund has been established in memory of Dr. C. Lewis Hyatt with the Family Practice Center, University of Arkansas College of Medicine. Memorial contributions will be used to purchase books for the Family Medical Center Library. Memorials may be sent to the Family Practice Center, 1700 West 13th, Little Rock, Arkansas 72202.

Dr. Fiser Receives Award

Dr. Robert Fiser of Little Rock was one of three young Arkansans to receive the Arkansas Outstanding Young Men Awards by the Arkansas Jaycees.

Blue Cross - Blue Shield Names Board Members

Dr. Jim Lytle of Batesville began a six-year term on the Blue Cross - Blue Shield Board of Directors in March. Dr. John P. Price of Monticello was re-elected Board chairman for the ensuing year.

Boone County Hospital Appoints Staff

Dr. Ralph Williams of Harrison was recently appointed as a member of the consulting staff of the Boone County Hospital and Dr. Albert Hammon, also of Harrison, was reappointed as a staff physician.

Hospital Honors Doctors

Bates Memorial Hospital in Bentonville honored the doctors on the staff of that hospital with a luncheon at the hospital and a red carnation boutonniere in honor of "Doctors' Day." Those participating in the luncheon included Dr. John A. Rollow, Dr. Richard N. Pearson, Dr. Douglas Ronald, Dr. David Denman, Dr. Jan Turley, Dr. Donald L. Cohagan, and Dr. Willard A. Howard, Jr., hospital chief of staff. Those doctors not present were Dr. Wendell Ward and Dr. Coy Kaylor.

Dr. Bruce Gives Speech

Dr. Thomas A. Bruce, dean of the University of Arkansas College of Medicine at Little Rock, spoke to the members of the Osceola Kiwanis Club and interested citizens on the possibility for obtaining new medical doctors in Osceola.

Dr. Saltzman Accepts New Position

Dr. Ben N. Saltzman of Little Rock has assumed a new position at the University of Arkansas College of Medicine as director for rural medical development programs. Dr. Saltzman served as chairman of the department of family and community medicine for two years. Dr. Saltzman will help the medical school in training medical students in rural medicine concepts and delivery of health care in the non-metropolitan area.

Thoracic Society Names Officers

Dr. Max Cheney of Mountain Home has been named president-elect of the Arkansas Thoracic Society; Dr. Jerry Stewart of Fort Smith is the 1976-1977 president of the Society. Other new officers are Dr. Jack Wagoner of Little Rock, vice president; and Dr. Clyde Tracy of Pine Bluff, secretary-treasurer.

Dr. Townsend Panel Member

Dr. T. E. Townsend of Pine Bluff was a member of the panel discussing "Accountability for Health Care Delivery" at the recent Arkansas Public Health Association convention held in Hot Springs.

Physician Retires

Dr. J. W. Morris of McCrory has retired from the practice of medicine after seventy-six years of service to his community. Dr. Morris has been a member of the Fifty Year Club for twenty-six years.

Physicians Speak at Medical Assistants Convention

Dr. G. Grimsley Graham of Little Rock and Dr. James L. Gardner of Hot Springs recently spoke at the twenty-second annual convention of the Medical Assistants at the Camelot Inn in Little Rock.

At the convention, the Medical Assistants presented Mr. Paul C. Schaefer, Executive Vice President of the Arkansas Medical Society, with a plaque with the following inscription: "In recognition of his faithful enthusiastic support of the AAMA Arkansas Society." The Medical Assistants also named Mr. Schaefer an honorary member of its Advisory Committee.

Physician Recognized for Contribution

Dr. T. E. Townsend, pediatrician of Pine Bluff, was recently recognized for his outstanding

contribution to Maternal and Child Welfare for the State of Arkansas. The award came from the Arkansas State Health Department.



NEW MEMBERS

Dr. John D. McConnell

The Pulaski County Medical Society has added the name of Dr. John Dorland McConnell to its membership roll. Dr. McConnell is a native of Fayetteville, Arkansas. He attended the University of Arkansas at Fayetteville from 1962 until 1966, and was graduated from the University of Arkansas Medical School in Little Rock in 1970. Dr. McConnell completed his internship at the University of Arkansas Medical Center and his residency training in Pathology was also taken at the University of Arkansas Medical Center. He is Board Certified in Anatomical and Clinical Pathology.

Dr. McConnell is practicing Pathology at 500 South University in Little Rock.

Dr. Neil H. Sims

The Pulaski County Medical Society has accepted Dr. Neil H. Sims for membership. He is a native of Fort Smith, Arkansas.

In 1943, Dr. Sims received a B.S. degree from the University of Arkansas at Fayetteville. He completed his medical education at the University of Arkansas School of Medicine and was graduated in 1950. Dr. Sims interned at Baltimore City Hospital in Baltimore, Maryland. He completed his residency in Pediatrics at Johns Hopkins Hospital. He is Board Certified in Pediatrics and is a member of the American Academy of Pediatrics and the Central Arkansas Pediatrics Society.

Dr. Sims is a Professor of Pediatrics at the University of Arkansas College of Medicine in Little Rock.

Dr. Vilasini D. Jayaraman

Dr. Vilasini Devi Jayaraman is a new member of the Garland County Medical Society. She is a native of Kerala, India.

Dr. Jayaraman was graduated from the Medical College Kerala University, Calicut, Kerala, India, in 1965. Her internship was taken at Norwegian-American Hospital, Chicago, Illinois; and her residency training in Anatomical and Clinical Pathology was taken at MacNeal Memorial Hospital, Berwyn, Illinois. She is Board Certified by the American Board of Pathology in Anatomical and Clinical Pathology and is now practicing Pathology in the Central Tower Building in Hot Springs.

Dr. Albert D. MacDade

The Sebastian County Medical Society has announced the membership of Dr. Albert D. MacDade. He is a native of Chester, Pennsylvania. Dr. MacDade received an A.B. degree in 1963 from the Marietta College at Marietta, Ohio. He was graduated from the Hahnemann Medical College in Philadelphia in 1967.

Dr. MacDade completed his internship at Riverside Methodist Hospital in Columbus, Ohio. His residency training was taken at Mayo Graduate School of Medicine in Rochester, Minnesota. He was in the United States Army Medical Corps from 1968 until 1970.

Dr. MacDade is a Neurological Surgeon at Holt-Krock Clinic, 1500 Dodson, in Fort Smith.

Dr. Paul I. Wills

Dr. Paul Irvin Wills is a new member of the Sebastian County Medical Society; he is a native of Siloam Springs, Arkansas.

Dr. Wills received his B.A. degree from John Brown University in Siloam Springs in 1964. He was graduated in 1968 from the Baylor College of Medicine in Houston, Texas. Dr. Wills interned at Maricopa County General Hospital in

Phoenix, Arizona. His first year residency in Surgery was also at Maricopa County General Hospital and his residency in Otolaryngology

was taken at Baylor College of Medicine.

Dr. Wills is now practicing Otorhinolaryngology at 600 South 16th Street in Fort Smith.



OBITUARY

Dr. John H. Williams

Dr. John H. Williams of Little Rock, and formerly of Malvern, died April 19, 1976, at the age of sixty-six. He was born on March 4, 1910.

Dr. Williams was a graduate of the University of Arkansas School of Medicine and he did his residency in surgery at Barnes Hospital in St. Louis.

Dr. Williams was a member of the Van Buren County Medical Society, the Arkansas Medical Society, and the American Medical Association.

Survivors include his six daughters and his brother, Dr. T. E. Williams of Newport.



Woman's Auxiliary

Boone County Auxiliary

Members of the Woman's Auxiliary of the Boone County Medical Society honored physicians for Doctors' Day with a progressive dinner which began with hor d' oeuvres at the home of Dr. and Mrs. Albert Hammon, dinner at the home of Dr. and Mrs. Don Vowell and dessert at the home of Dr. and Mrs. Charles Ledbetter. Mrs. Mahlon Maris, chairman, Mrs. Thomas J. Simpson and Mrs. Ronald R. Reese were the committee members in charge of Doctors' Day observance.



ANSWER—Electrocardiogram of the Month

ECG retouched for clarity — Basic mechanism is regular at a rate of 42/minute and is probably junctional with a right bundle branch block configuration. Intermittent pacemaker function is seen. Occasional captured beats are present at a rate of 72/minute. Pacemaker senses native beats but pacemaker artifact without capture are present.



July, 1976

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 73 No. 2

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● Predominant
psychoneurotic
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● Associated
depressive
symptoms

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Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor

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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive dis-

orders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anti-convulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful

respond to one

According to her major symptoms, she is a psychoneurotic patient with severe anxiety. But according to the description she gives of her feelings, part of the problem may sound like depression. This is because her problem, although primarily one of excessive anxiety, is often accompanied by depressive symptomatology. Valium (diazepam) can provide relief for both—as the excessive anxiety is relieved, the depressive symptoms associated with it are also often relieved.

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in the patient within a few days rather than in a week or two, although it may take longer in some patients. In addition, Valium (diazepam) is generally well tolerated; as with most CNS-acting agents, caution patients against hazardous occupations requiring complete mental alertness.

Also, because the psychoneurotic patient's symptoms are often intensified at bedtime, Valium can offer an additional benefit. An *h.s.* dose added to the *b.i.d.* or *t.i.d.* treatment regimen can relieve the excessive anxiety and associated depressive symptoms and thus encourage a more restful night's sleep.



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2-mg, 5-mg, 10-mg scored tablets

in psychoneurotic
anxiety states
with associated
depressive symptoms

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Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies.

Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle

spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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FOREWORD

The Journal proudly presents a symposium on internal medicine to be published in two parts. The Introduction by Dr. Joseph Bates is self-explanatory. It is felt that the readers of The Journal of the Arkansas Medical Society will find these papers of great interest.

Alfred Kahn, Jr., M.D.

Editor

Introduction

Joseph H. Bates, M.D., F.A.C.P.*

On November 15, 1975, the Arkansas membership of the American College of Physicians held its annual regional meeting in Little Rock with more than 100 Internists in attendance. The program was especially structured to appeal to the generalist in Internal Medicine and was of such high quality and applicability for physicians involved in primary care that it seemed appropriate to record the papers in the *Journal of the Arkansas Medical Society*. I am confident that the readers will agree that these presentations successively review the "state of the art" in a number of important areas including newer antibiotics and anti-inflammatory agents.

The person primarily responsible for organizing the scientific program and for coordinating the preparation of these papers in their final form was the Program Chairman, Dr. Galen Barbour. To Dr. Barbour, and Drs. Charles Boyd, Bill

Harville, Monroe Painter, Allan Pirniquie, Robert Power, Taylor Prewitt, and Spencer Raab, who served with him on the Program Committee and to all the authors of these papers, I extend my warmest congratulations.

Apart from the program, it should be noted that the discipline of Internal Medicine in Arkansas has attained a "critical mass." There are Internists in most areas of the State and the number is increasing at a rapid rate. Within ten years the number practicing in Arkansas will more than double and this development will impact very favorably on the availability and quality of primary and secondary care throughout the State. One of the important roles of the American College of Physicians is to provide opportunity for continuing education for Internists and the Arkansas membership is committed to meet and expand upon these responsibilities in the years ahead.

*Governor for Arkansas, The American College of Physicians, 5 Glenridge Road, Little Rock, Arkansas 72207.

Facilitation of Healing in Myocardial Infarction

Thomas A. Bruce, M.D., F.A.C.P.*

In the spectrum of total management of acute myocardial infarction, there are three major goals. First, we want to prevent lethal complications. Here the accent is on the word *prevention*—the prevention of arrhythmias (the major cause of death), the aggressive prevention of congestive heart failure and thromboembolism, etc. Secondly, preservation of heart muscle has been receiving a great deal of attention over the past 3 or 4 years. We now realize that reducing the oxygen needs of myocardium which is poorly perfused, perhaps spreading available oxygen a little further, may actually salvage heart muscle that otherwise would not survive. The third major goal and the focus of this report concerns the ways one can stimulate better or more rapid healing. Our studies** were done in two parts—a short-term experimental evaluation, and a long term, or chronic, phase. We ligated one or two branches of the anterior coronary artery in six open chest, anesthetized dogs. A moderate area of total ischemia was produced which caused subsequent infarction. In the acute series of animals this was an intensely cyanotic area; in the long-term animals this area was subsequently replaced by scar. Three hours after the coronary arteries were ligated, the animals were given glycine 2-C¹⁴ intravenously, 30 μ c/kg. The glycine incorporation into protein was considered one of the evidences of protein synthesis in the myocardium; four hours after the glycine had been administered the animals were sacrificed. Thus in the acute phase studies the effects of protein synthesis, immediately after the initial coronary artery ligation, were seen. Sections of heart muscle were taken from a) an area of almost total ischemia, b) from a borderline area of less ischemia, and c) from the relatively normal myocardium (control) from the base of the left ventricle, on the other side of the heart. These pieces of tissues were then homogenized and the protein was extracted with a dilute solution of trichloroacetic acid. Nucleic acid and lipid contaminants were eluted from this crude protein precipitate leaving a relatively pure fraction

of mixed proteins. Most of the exacting biochemical work was performed by Dr. Sigmundur Gudbjarnason, studying the incorporation of glycine C¹⁴ into some subcellular protein fractions. In the nuclear ribosomes, he noted greater than normal incorporation of glycine in the infarcted area within four hours; glycine incorporation into protein then began to rapidly accelerate in a number of other subcellular fractions. He also showed that the incorporation of glycine into leukocytic protein was less than that in muscle, and therefore probably did not play a very significant role.

The results of our studies are shown in Table 1. The radioactivity count in samples of heart muscle protein of constant weight was assessed in the various zones. With the normal incorporation of glycine C¹⁴ into protein at 464 counts per minute, it can be seen that there is increased amount of glycine incorporation (protein synthesis) in the borderline area, and a significant decrease in the infarction area. Some of this has to do with perfusion—gaining access of the isotope to the area. The right ventricle shows protein synthesis on a weight basis very much like the normal left ventricle.

When six animals were given insulin one hour prior to the time of ligation of the coronary artery, there was a 17% increase in the incorporation of glycine into protein in normal left ventricle, 13% increase in the borderline area, 94% increase in the area of the infarction, and 9% in the area of the right ventricle. To evaluate the possibility of endogenous stimulation of growth hormone, exogenous human growth hormone was administered in another study. Table 2 depicts these results. There was an 82% increase in glycine incorporation in normal left ventricle, a 91% increase in the borderline area, a 168% in-

TABLE 1
Incorporation of Glycine-2-C¹⁴ into Protein
of Infarcted Heart Muscle in Six Dogs
(cpm/gm tissue — mean \pm S.D.)

<i>Infarcted Area</i>	<i>Borderline Ischemic Area</i>	<i>Normal LV (control)</i>	<i>Right Ventricle</i>
306 \pm 16	567 \pm 49	464 \pm 27	426 \pm 11

*Professor of Medicine and Dean, College of Medicine, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Arkansas 72201.

**These studies were performed in the laboratory of Dr. Richard Bing, Wayne State University, Detroit, Michigan.

TABLE 2
Incorporation of Glycine-2-C¹⁴ into Protein
of Infarcted Heart Muscle

Drug Administered	No. of Dogs	% increase over baseline			
		Infarct Area	Border	Normal LV	Right Ventricle
Insulin	6	94%	13%	17%	9%
Growth Hormone	6	168%	91%	82%	55%
Both	9	251%	99%	108%	95%

crease in the infarction area, and a 55% increase in the right ventricle. Thus, growth hormone causes a significant increase in protein synthesis. When both insulin and growth hormone were given to 9 dogs, there was a further increase in synthesis. Again, the striking increase in incorporation of glycine-C¹⁴ in the area of infarction as compared to that of normal left ventricle was noted.

Table 3 shows results from studies performed following the administration of various substances, including the B vitamins and some essential amino acids. A slightly greater increase was shown in all areas than with insulin alone. Following Vitamin C administration, there was little difference in the normal left or right ventricle, but a 122% increase in glycine incorporation was noted in the area of infarction. This was limited to the area of intense cyanosis. The effects of Vitamin C on wound healing has been a subject of interest for some time; ascorbic acid is a low molecular weight compound which has a number of metabolic affects. The results did not suggest a direct effect on protein synthesis, since there was little change in normal muscle. With the anabolic steroid, methandrostenolone, the greatest response was seen. There was a 61-73% increase in the normal and borderline areas, and a 250% increase in glycine incorporation in the infarction area. A dramatic increase in protein synthesis does appear to be possible in severely ischemic muscle.

TABLE 3
Incorporation of Glycine-2-C¹⁴ into Protein
of Infarcted Heart Muscle

Drug Administered	No. of Dogs	% increase over baseline			
		Normal LV	Border	Infarct Area	Right Ventricle
Insulin +					
Coenzymes	5	93%	80%	172%	92%
Ascorbic Acid	4	5%	19%	122%	12%
Methandrostenolone	5	61%	73%	249%	80%

To determine whether these results indicate less muscle destruction or better scar formation, long term experiments were initiated. All procedures were identical except that the animals were allowed to survive for six weeks prior to being sacrificed. Table 4 summarizes the long term data in terms of the thickness of the scar and the frequency of aneurysm. In the six control animals the scar was 4 mm. thick and two of the dogs had large bulging aneurysms in the area. In four dogs treated with insulin and five dogs treated with anabolic steroids there was no significant difference in the thickness of the scar, but the area of the fibrous reaction was much smaller and there were no aneurysms. In contrast, in nine dogs treated with a protein-free diet there was a very thin and large scar with 78% incidence of aneurysm. In still another study, not reported here, we evaluated the effects of the catabolic steroid cortisone and the results were very similar to those seen in the protein-free diet.

In summary, the results of these studies indicate that not enough attention has been given to the phenomenon of healing of acute myocardial infarction in the past. Frequently patients are given 5% glucose solutions for 2 to 3 days following the initial hospitalization for infarction with little or no food. Such treatment is analogous to the protein-free diet used in the animal studies. There appear to be certain pharmacological manipulations which may stimulate the rate of healing, or at least the intensity of the fibrous tissue formation, so that the size and thickness of the scar and the frequency of aneurysm formation might improve under optimal conditions. A variety of anabolic agents appear to have beneficial effect and need clinical exploration.

TABLE 4
Thickness of Scar Tissue and
Frequency of Ventricular Aneurysm;
Effects of Long Term Treatment (Six weeks)

	No. of Dogs	Thickness of Scar, Mm (mean \pm S.D.)	Frequency of Aneurysm, (%)
Control	6	4.0 \pm 0.4	33%
Insulin	4	5.0 \pm 0.6	0%
Methandrostenolone	5	3.4 \pm 0.3	0%
Protein-free diet	9	1.6 \pm 0.8	78%

Clinical Application of Bone Marrow Culture from Patients with Acute Leukemia

Mary J. Raab, M.D.,* Carla Anderson,** and Spencer O. Raab, M.D., Member, A.C.P.***

Until recently, knowledge concerning the growth and replication of granulocyte precursor cells in the bone marrow was severely limited. Labeling techniques using DFP³² or tritiated thymidine resulted in some elaboration of the kinetics of cells after they had finished dividing and were delivered to the circulation. These studies indicated that the bone marrow consisted of approximately two pools: the mitotic marrow pool and the postmitotic marrow pool. The cells in the postmitotic pool were metamyelocytes, juveniles, and polymorphonucleogranulocytes. As these cells matured, they moved out into the blood pool. The mitotic marrow pool consisted of promyelocytes, myeloblasts, and myelocytes. Some of these cells also matured and moved into the postmitotic pool. However, common sense dictates that in order to prevent depletion of this vital pool, some of the cells must have the ability to self-replicate as well as to differentiate under appropriate circumstances. These cells, which are self-replicating, are called stem cells. Until recently, knowledge concerning these stem cells was very scanty. Cells in this pool represent the predominant type seen in the bone marrow of patients with acute leukemia.

A technique in which these particular cells could be isolated and grown *in vitro* was necessary before further insight into their kinetic abnormalities could be obtained. In 1966 Bradley and Metcalf described the method by which mouse bone marrow cells could be grown *in vitro*. Data obtained from their *in vitro* agar studies as well as information obtained from the *in vivo* spleen colony technique used by other investigators suggested a model for the stem cell compartment. (Figure 1). It was postulated that a multipotential or primitive stem cell existed which could give rise to a unipotent stem cell of each cell line—erythrocytic, granulocytic, and megakaryocytic. These unipotent stem cells were called colony-

MODEL OF HEMATOPOIETIC STEM CELL COMPARTMENTS
UNIPOTENTIAL STEM CELL (CFU)

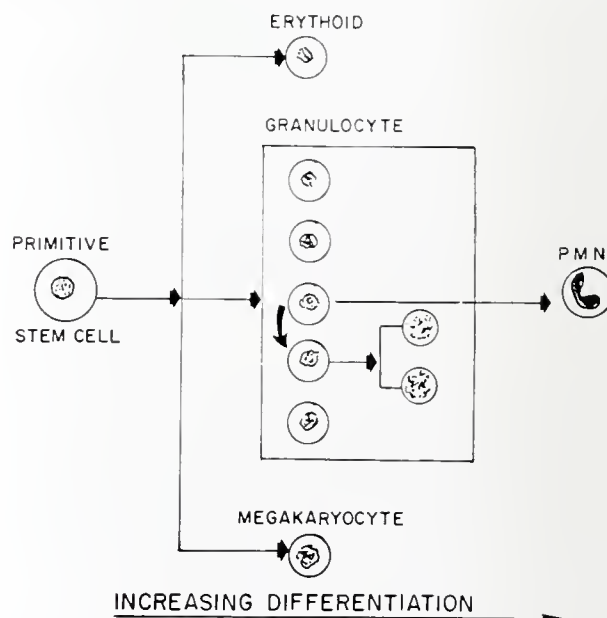


Figure 1.
A suggested model for hematopoietic stem cell compartments.

forming units because they formed colonies of a single cell type when grown *in vitro*.

Today we will concern ourselves with only the granulocytic compartment. Two types of growth are noted within this compartment. Normally, cells of the granulocyte series divide and mature to form mature PMN's. It is believed that the unipotent stem cell is replenished from the multipotential pool by demand in order to keep a steady flow of mature cells into the circulation. Evidence points to a so-called "negative feedback system" in which only a sufficient number of the unipotent cells flow into this compartment to preserve a steady state. In the leukemic state, there is an apparent lack of effective control of this colony-forming unit, thus building up a large population of immature undifferentiated cells which fail to form mature cells. It is this group of cells which we are studying.

In 1970 Pike and Robinson further adapted the method of Bradley and Metcalf to the culturing of human bone marrow cells, and it is this method which we use in our laboratory. Figure 2 is a schematic representation of this method. The technique consists of using a tissue culture plate

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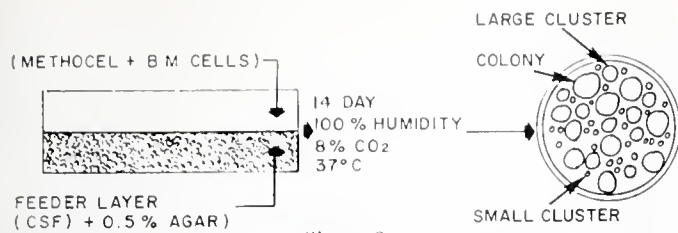


Figure 2.

A schematic representation of the *in vitro* culture of human bone marrow cells.

with double layers. The bottom layer is a so-called feeder layer and contains a source of colony-stimulating factor. Initial investigations indicated that some substance was necessary to initiate and to maintain growth of immature granulocytic cells *in vitro*. We use human peripheral white blood cells as the source of the colony-stimulating factor. The cells to be studied are placed on top of this feeder layer and the plates are incubated for 14 days with 100% humidity, with 8% CO₂ at 37 degrees C. At the end of this time the plates are examined for the presence of growth.

Three types of growth are seen: colonies which are aggregates of more than 50 cells in a small contiguous area, large clusters that are made up of 20 to 50 cells in groups, and small clusters that consist of less than 20 cells. The types of growth that result when 1×10^6 nucleated cells from normal bone marrow are plated in our system is shown in Table 1. This data was obtained from ten normal individuals. Although there was a considerable variation, all normal bone marrow exhibited some kind of growth and colonies and large clusters were always present. Growth of cells from the bone marrow of patients with leukemia was quite different. These results are also shown in Table 1. There was a significant decrease in number of all three kinds of growth. This decrease was most marked in colony formation and the presence of large clusters. In some patients no colonies or large clusters were seen. More than 75% of leukemic bone marrow cultured exhibited only small cluster type of growth.

TABLE 1
Comparison of Growth from Normal and Leukemic Bone Marrow when 1×10^6 Nucleated Bone Marrow Cells are Plated

	Colonies	Large Clusters	Small Clusters
Normal Marrow	10-50	15-350	35-500
Leukemic Marrow	0-5	0-300	0-500

The successful development of the *in vitro* culture technique opened up many new pathways for the study of acute leukemia. We decided to modify this method in order to test the sensitivity *in vitro* of leukemic cells in various antileukemic agents. Prior to these investigations, the only method for determining whether the patient's leukemic cells were sensitive to antileukemic therapy was the hit-or-miss method of clinical trial. Since cytarabine is most widely used in the treatment of acute leukemia, we decided to use this drug in our pilot project.

Bone marrow cells from untreated patients were incubated for one hour at 37 degrees C. with cytarabine in a concentration of 0.5 micrograms/milliliter of plasma and cells. Other investigators had demonstrated that this concentration of drug was present in human plasma when 200 milligrams of cytarabine per square meter of body surface area is infused over a one hour period. For each patient a control is handled in an identical fashion except that no drug is added to the sample. The results from two patients are shown in Table 2. Notice that the first patient had a 75% reduction in the number of large clusters, and an approximate 50% reduction in the number of small clusters, after his cells were incubated with cytarabine. The second patient exhibited a very similar reduction in growth pattern. These *in vitro* results were correlated with the clinical response to therapy. Bone marrow from two additional patients has been studied in this manner, but therapy with cytarabine has not yet been started; these results are also shown in Table 2. You can see that these patients also showed a similar decrease in large clusters and small cluster

TABLE 2
Bone Marrow Culture Results in 4 Patients with Acute Myeloblastic Leukemia Showing the Effect of Incubation with Cytarabine

Patient		Colonies	Large Clusters	Small Clusters	Response To Therapy
F.M.	No Drug	0	212	500	Yes
	Cytarabine	0	52	272	
G.W.	No Drug	0	50	60	Yes
	Cytarabine	0	19	33	
E.A.	No Drug	2	14	175	Not Tested
	Cytarabine	3	3	72	
E.D.	No Drug	2	41	100	Not Tested
	Cytarabine	0	5	26	

growth, and one would like to predict that these patients would have a favorable response with cytarabine.

Our investigations are summarized as follows:

1) A technique has been described for the *in vitro* culture of bone marrow cells.

2) The growth of cells from leukemic bone marrow has been compared with that of normal bone marrow.

3) This *in vitro* method has been used to determine the sensitivity of leukemic blast cells to cytarabine. The results in four patients were described.

4) We have correlated the *in vitro* sensitivity to cytarabine with the actual response to this agent in two patients and good correlation was seen. Cells from two other patients have been tested but therapy has not yet been started.



Risks of Selective Coronary Arteriography

W. Sexton Lewis, M.D., Member, A.C.P.*

Selective coronary arteriography has been used as a diagnostic tool for almost fifteen years, but it is only during the past ten years that this procedure has been performed in significant numbers, by multiple institutions over the United States. The combinations of selective coronary arteriography, left heart catheterization, and left ventriculography has become an important diagnostic procedure in the clinical assessment of cardiac patients. It is important for us to be aware of the risks involved in this procedure, and I would like to present the complications we have had in doing these studies.

Table 1 shows the data base for this report. We have a total of 1531 consecutive cases from 1966 through May of 1975; the initials NA indicate that these records were not available. The term "significant" disease means coronary occlusion greater than 50%, and the term "insignificant" disease means less than 50% occlusion. The term "insignificant" does not mean, therefore, that the coronaries are normal. The Veterans Administration Cooperative Study has defined greater than 50% obstruction as significant disease; today I would probably be inclined to draw that line at greater than 70% occlusion as being significant. The brachial technique alone was used in 1489 cases, but we used the femoral artery alone or in combination with the brachial technique in 40 cases. The complications discussed here include some of the lesser complications not usually reported.

CNS complications were encountered in four

patients. An occlusion of the branch of the retinal artery with a persistent visual defect in the perimacular area occurred in one patient with calcific aortic stenosis, but calcium was not seen in the branch arteriole. Whether the occlusion was the result of a brief period of hypotension and local factors or was the result of embolism is not certain. Two patients had typical transient ischemic attacks in spite of heparin anticoagulation; one patient was felt to have had a dissociative reaction of hysterical nature, but this diagnosis was not certain and, therefore, we included the patient in our series. No permanent sequelae were seen in the latter three patients.

Femoral artery occlusion occurred in two of forty cases catheterized by the femoral route, an incidence of 5%; this occurred in spite of heparin administration. In both of these patients 8-F catheters were used, and it has been reported that the complication rate is greatly increased if one uses an 8-F catheter as opposed to a 7-F.

Fever was documented in only three cases; however, I feel certain that we had more patients with fever than indicated here. Blood cultures were negative in these patients, and we have subsequently ignored asymptomatic temperature elevations. One patient did have dysuria, and we suspected that his urinary bladder had been partially paralyzed by Atropine; this may have contributed to a urinary tract infection.

Allergy occurred in only one case for an incidence of 0.07%. This patient exhibited both hypotension and facial swelling following Hypaque injection. Subsequently we have used Renografin-76.

Only two cases of paroxysmal atrial tachycardia were documented in our series. I feel that we have had more than that, but they were very transient and can be converted by injection of the right coronary artery. This technique is almost as effective as countershock.

Left ventricular extravasation of contrast material occurred in two cases; an end hole catheter was used in both cases. Both of the patients were young and the coronary arteriograms were normal. This complication resulted in revision of our technique to employ a closed end catheter with side holes for left ventricular injections.

TABLE 1. DATA BASE

Total Number:	1531	
Time:	1966 — May of 1975	
Disease:	Insignificant (763)	49.8%
	Significant (764)	49.9%
	N.A.* (4)	0.3%
Average Age:	45 years	
Males:	1130	73.8%
Females:	401	26.2%
Technique:	Brachial (1489)	97.3%
	Femoral (16)	1.0%
	B and F (24)	1.6%
	N.A. (2)	0.133%

*Records not available

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Third degree heart block occurred in one patient. This occurred after the left ventricular angiogram and was felt to be a result of injection in the left ventricular outflow tract in the septal region. A temporary pacemaker was necessary in this patient.

There were four cases of innominate artery hemorrhage; this serious complication is not discussed in the literature. All of these patients had tortuous innominate arteries, and some difficulty was encountered in introducing the catheter into the aorta. Two of these instances occurred 24 to 48 hours after the procedure, and one followed an episode of coughing. Three patients complained of discomfort and fullness in the upper chest and neck and had x-ray evidence of widening of the upper mediastinum in the region of the innominate artery. The fourth patient lost his brachial pulse and required a saphenous vein graft from the carotid to the brachial artery. In subsequent cases this complication has been avoided by using a soft catheter and using the cradle that does not cause a buckling of the subclavian and innominate artery.

There were six episodes of hypotension that required treatment. Treatment consisted of epinephrine and corticosteroid administration in one patient, antihistamine in another, and levarterenol in four. All recovered without sequelae with one exception; that patient sustained a retinal arterial branch occlusion and a permanent visual field defect, as mentioned above under CNS complications.

Brachial thrombosis is defined as an absence of the radial pulse with no pulse below the incision site. Nine such cases occurred in our series for an incidence of 0.59%, lower than generally reported in the literature. This lower incidence may be due to systemic heparin and our use of 7-F soft catheters; we reexplored the arteries, using Fogarty catheters if thrombosis was suspected. Thus far, none of these patients have lost forearm function and the majority have a palpable radial pulse.

Ventricular fibrillation occurred in eleven cases, developing in ten patients following right coronary artery injection. It does not necessarily correlate with the degree of coronary artery disease. Our preoperative medication includes 0.4 mg atropine, and if the patient's heart rate drops below 60, we give additional atropine. All

patients required cardioversion; additional drugs are not subsequently required.

Myocardial infarction occurred within 24 hours of catheterization in five patients, for an incidence of 0.33%. Death occurred in one of these cases, for an incidence of 0.065%. The patient tolerated injection of his left coronary artery normally, but following the injection of his right coronary artery he complained of nausea, developed a slow junctional rhythm, hypotension, and a left ventricular infarction. Resuscitation was to no avail. Autopsy revealed a small left coronary ostium and an acute anterior infarction.

The present series compares favorably with other larger series in the literature in terms of morbidity and mortality rates.

The evolutionary changes that have occurred during our series are as follows:

1. We systemically heparinize all patients.
2. We have converted from using Hypaque to Renografin-76, with 37% iodide. It contains less sodium than the newer Renografin-76, which has been associated with an incidence of ventricular fibrillation.
3. We have atropine, a vasopressor, and lidocaine ready in syringes for immediate use. The cutdown may produce pain and a vaso-vegal reaction with hypotension and bradycardia; we are very aggressive with pharmacology and treat these patients with atropine and a vasopressor in small amounts if required. A patient who has unstable angina should certainly not be hypotensive for very long, and with these drugs on the tray there is a very little delay before we can institute treatment.
4. We attempt to exercise all patients with bicycle ergometry prior to the study. This gives us an idea of their response under stress, and if significant ventricular ectopy occurs we premedicate these patients with procainamide.
5. We use a cradle to reduce the time the patient is in the lab. Contrast material is warmed to get a better bolus into the arteries and therefore a technically better procedure. We cool our lab to 69 degrees, and cover the patient with blankets. This

allows us to work more efficiently and therefore reduce the time the patient is in the laboratory.

6. We use a pacing catheter if the patient exhibits IV block on electrocardiogram.
7. We use soft catheters and extreme caution in tortuous innominate arteries.
8. We use a closed end left ventricular catheter for ventricular angiocardiograms.
9. We use a smaller 7-F, soft coronary catheter rather than Teflon, which tends to be harder.
10. Myocardial perfusion scans are performed

routinely by injecting the left coronary artery with technetium-tagged albumin and the right coronary artery with ^{131}I tagged albumin.

In conclusion, the surprise finding of this series is that ventricular fibrillation most often follows injection of the right coronary artery. This has not been mentioned in other series, and the explanation for this finding is not clear. The second finding is that selective coronary arteriography is a relatively safe procedure for clinical assessment of patients, and the third conclusion is that this clinical experience has resulted in a broadening of indications for this diagnostic study.



Follow-up of Tuberculosis Patients Treated Largely as Out-patients

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Since 1967, patients with tuberculosis in southeastern Arkansas have been treated largely as outpatients following a brief period of hospitalization at Jefferson Hospital, Pine Bluff, in a general medical setting. This program in Arkansas was the vanguard for the current trend in the United States toward almost total treatment of tuberculosis outside the hospital. This report gives the observations made on the patients admitted to Jefferson Hospital in the first 3½ years of the program, July 1967 through December 1970, after a follow-up of 4 to 7½ years. A success rate of 95% was achieved for those patients completing 18 months chemotherapy, and the overall long-term success rate was 97.5%.

During the period from July 1967 through December 1970, 794 patients were admitted to the hospital as suspects and 353 or 44.4% of these were finally diagnosed as suffering from tuberculosis. Of these 353 cases, 281 were new cases and 72 were relapses from previous therapy, primarily in the State Sanatorium.

Table 1 analyzes the duration of hospital stay of these patients. As shown, 190 patients (53.8%) stayed less than a month and another 115 patients (32.6%) stayed one to two months. There were

48 patients who stayed for longer periods, extending from two to seven months. However, the majority were discharged within a period of two months; the average stay in the hospital was 35.4 days with a range of one to 196 days.

On admission, 263 patients, or 74.5%, were bacteriologically positive by culture. The rest were negative. When discharged from the hospital to continue ambulatory treatment, 136 patients (38.5% of the entire group) were still positive. These patients were no danger to their household contacts, however; previous reports by Gunnels and associates in this same group of patients have shown that household contacts were not subsequently infected by their presence. In the analysis of their sputum conversion, 10 patients were bacteriologically positive on admission but died during the initial hospitalization and 11 patients were treatment failures, having failed to convert during initial chemotherapy; these patients were excluded from the total of 263 patients with positive bacteriology, leaving 242 for the analysis. Eighty-eight (36.3%) converted in one month, 59 (24.4%) in two months, and 39 (16.1%) in three months. Thus 76.8% converted within a period of three months. However, there were 56 patients (23.2%) who required from 4 to 11 months to convert. The average period of sputum conversion was 2.8 months (range 1-11 months).

Thirteen of the 353 patients died during the initial hospitalization, nine directly due to tuberculosis and four due to non-tuberculous conditions such as acute myocardial infarction and cerebrovascular accidents. Therefore, 340 patients were released to complete the prescribed course of 18 months chemotherapy on an outpatient basis. The results of this program, after 18 months of therapy and at long-term follow-up, are shown in Table 2.

Two hundred eighty-six patients were converted and completed the 18 months of chemotherapy and 54 did not, 25 because of death due to non-tuberculous causes and 14 moved out of the state.

TABLE 1
Duration of Hospital Stay

<i>Time in Months</i>	<i>Number of Cases</i>
Less than 1	190 (53.8%)
1 - 2	115 (32.6%)
2 - 3	35
3 - 4	11
4 - 7	2

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TABLE 2
Follow-up of Tuberculosis Patients After
Discharge From the Hospital

	<i>Period of Follow-up</i>	
	<i>From Discharge through 18 Mos. of Chemotherapy</i>	<i>Completion of Therapy to Dec. '74</i>
No. patients followed	340	297
Deaths, non-tuberculosis	25	43
Moved out of state	14	9
Remaining for analysis	301	245
Deaths, tuberculosis	4	0
Treatment failures	11	—
Relapses	—	6
Treatment successes	286	239
Success Rate (%)	95%	97.5%

Death from tuberculosis occurred in four and was largely due to failure to cooperate in therapy. There were 11 cases of treatment failure during the initial 18 months of chemotherapy (3.2%).

Long-term follow-up was for 4 to 7½ years, until December 1974. The cases which were followed were 286 converted and treated cases and 11 treatment failure cases, making a total of 297. This revealed that 43 died due to non-tuberculous causes and nine moved to other states, leaving 245. Six of these relapsed—completed initial full chemotherapy, were converted, but became active again during this period. This gives an overall long-term success rate of 97.5%.

There were 11 treatment failures—patients who failed to convert during the initial 18 months of

chemotherapy. Nine of these were retreated with second-line drugs and two were given first-line drugs. Retreatment with 18 months of chemotherapy was successful in eight, who remained negative bacteriologically. Two did not complete the therapy and died of tuberculosis, and one did not complete the course and moved to another state.

There were six relapses; they were retreated with first-line drugs in two and second-line in four. The result was that three had completed 18 months of chemotherapy and remained negative bacteriologically, and three were completing therapy but were still negative as of December 1974.

The advantages of this program to the patients are obvious—less disruption of life, fewer instances of refusal of therapy, and less inconvenience in obtaining adequate medical supervision. The results clearly indicate the superiority of the program over the sanatorium treatment in which nearly 50% of the patients left against advice or absconded without further treatment. Success of such a program depends upon well organized and staffed local clinics, diligent public health nursing, and continual staff education as newer developments occur. A few hospital beds should be available where clinically ill patients may be treated until well enough to be released to home or to lesser care facilities, but the bulk of therapy should be outside of the hospital.



Metabolic Alkalosis

George L. Ackerman, M.D., F.A.C.P.*

Metabolic alkalosis is characterized by an elevated level of bicarbonate in the plasma, due either to gain of bicarbonate or loss of hydrogen ion. Hydrogen ion may be lost from the extracellular fluid by several routes—in vomitus, urine, into the cells, or in the stool. Any of these mechanisms that produce hydrogen ion loss generate the alkalotic state; that is, an elevated plasma bicarbonate level. Given the kidney's ability to excrete bicarbonate readily, however, it is less clear why the alkalotic state should be perpetuated. In fact, persistence of alkalosis raises the question: Why has the kidney altered its handling of bicarbonate? Why does it continue to reabsorb bicarbonate in a seemingly inappropriate manner? In considering answers to these questions it is helpful to review the renal handling of bicarbonate, note the factors that may alter renal bicarbonate reabsorption, and then relate them to the maintenance of the alkalotic state in various clinical conditions.

The mechanisms by which the kidney excretes hydrogen ion and generates bicarbonate ion are illustrated in Figure 1. Bicarbonate reabsorption depends upon the hydration of carbon dioxide to form carbonic acid. This reaction is accelerated by the enzyme carbonic hydrase. Carbonic acid dissociates to hydrogen ion and bicarbonate ion. Hydrogen ion moves into the tubular lumen in exchange for sodium. The reabsorbed sodium pairs with bicarbonate generated from carbonic acid and is returned to the plasma. "Reabsorption" of bicarbonate is, in fact, reabsorption of sodium. Factors that influence sodium reabsorption may then influence bicarbonate reabsorption. The most important of these is the state of the extracellular fluid volume, and, as we shall see, contraction of the extracellular fluid volume may serve to perpetuate metabolic alkalosis. Carbonic acid formed in the tubular lumen is dehydrated by carbonic anhydrase on the luminal surface of the proximal tubule. Carbon dioxide diffuses back into the cell and the cycle is repeated.

This process is capable of reclaiming all of the filtered bicarbonate. By a similar process the kidney can generate new bicarbonate ions and in fact does so each day in an amount necessary to replace bicarbonate utilized in buffering organic

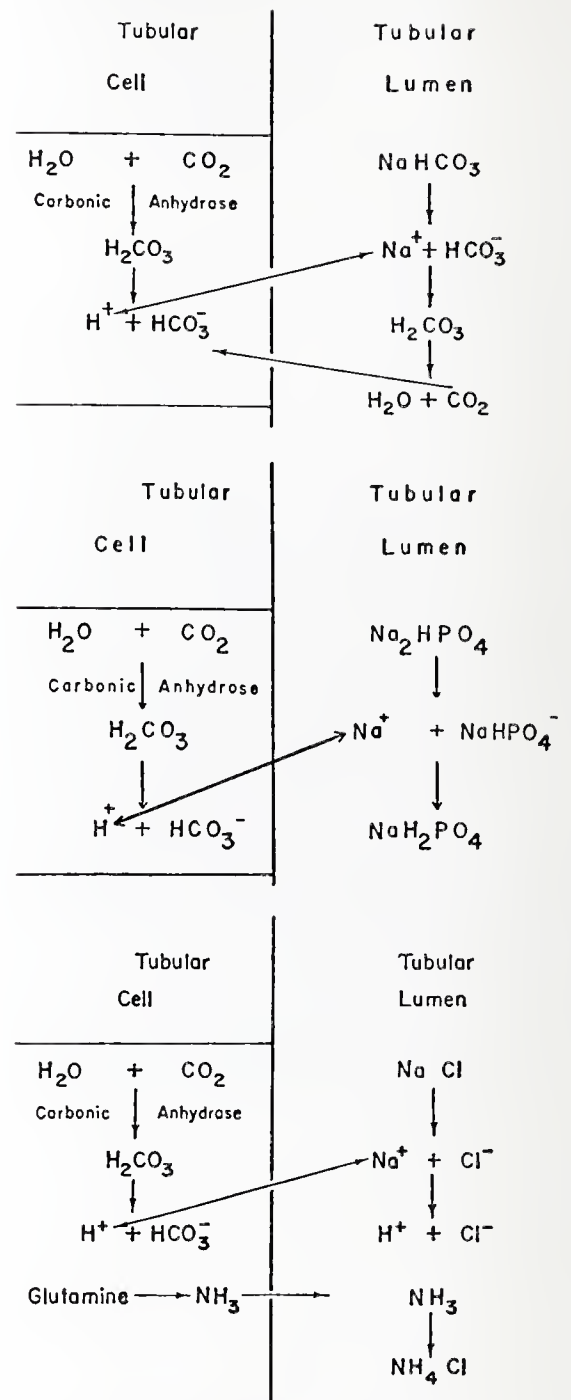


Figure 1.
Excretion of hydrogen ion and generation of bicarbonate ion by the kidney.

and mineral acids ingested in our diet. As shown in the second panel of Figure 1, excreted hydrogen ion titrates urinary buffers, the most important being phosphate salts, generating new bicarbonate. Similarly, as the third panel of the same figure illustrates, excreted hydrogen ion may combine with ammonia synthesized in the renal tubular epithelial cells to form ammonium salts, again generating a new bicarbonate ion.

Factors that modify the processes described, particularly factors that increase bicarbonate re-

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absorption (or hydrogen ion excretion—the terms are synonymous), might well be of importance in producing or maintaining an alkalotic state.

The factors modifying renal bicarbonate reabsorption are shown in *Figure 2*. Expansion of the effective extracellular fluid volume leads to decreased sodium and bicarbonate reabsorption in the proximal tubule. Conversely, and more importantly in thinking of the maintenance of metabolic alkalosis, a contracted extracellular fluid volume increases sodium and bicarbonate reabsorption in the proximal renal tubule. This contracted volume may be either absolute or a contraction of the “effective” extracellular fluid volume. In edematous states with a low cardiac output or with sequestration of fluid in an ascitic abdomen, there may be an absolute increase in the volume of the extracellular fluid but the “effective” volume is low, and the kidney behaves as if the organism were truly hypovolemic. As will be seen, the alkalotic patient who has a diminished extracellular fluid volume, either absolute or effective, remains alkalotic until this defect is corrected. Potassium deficit is another factor that increases bicarbonate reabsorption and in the hypokalemic patient the kidney perpetuates alkalosis by reabsorbing filtered bicarbonate and excreting an acid urine. Excessive production of aldosterone, either primary or secondary, increases secretion of hydrogen ion thus generating new bicarbonate. Alkalosis is a common feature of primary aldosteronism. Hypercapnia, an elevated $p\text{CO}_2$, stimulates bicarbonate reabsorption. An elevated carbon dioxide tension increases the amount of carbon dioxide hydrated to form carbonic acid, and thus the generation of bicarbonate. (Top panel, *Figure 1*).

An elevated parathyroid hormone level decreases bicarbonate reabsorption and absence of parathyroid hormone increases bicarbonate reabsorption. This is usually of slight clinical significance; however it may be noted that patients with hypoparathyroidism tend to be alkalotic.

Two stages then in the pathogenesis of metabolic alkalosis may be considered: The generation of the alkalotic state by hydrogen ion loss and the maintenance of alkalosis by renal bicarbonate reabsorption. In *Table 1* the various ways by which metabolic alkalosis may be generated are shown, the factors operative in the maintenance of the alkalotic state in the various situations are summarized, and finally a basic approach to treatment is listed.

A common cause of metabolic alkalosis is prolonged nasogastric suction or intractable vomiting. Hydrogen ion is lost in the hydrochloric acid of gastric juice and the plasma bicarbonate level becomes elevated. The alkalotic state is maintained by two mechanisms. Volume contraction, engendered by lack of intake and sodium and water losses in the gastric aspirate, stimulate bicarbonate reabsorption by the renal tubule. In addition, potassium deficit incurred by continuing losses in the gastric aspirate has a similar effect. Of the two it appears that volume contraction is more important. Volume expansion with saline is ideal therapy in that sodium and water are provided and in addition, administration of chloride furnishes a readily reabsorbable anion so that the kidney can “choose” between high levels of bicarbonate and chloride ion. With volume repletion, and with replacement of potassium losses, the renal tubule then excretes bicarbonate, reabsorbs chloride, and the alkalosis is corrected.

FACTORS INFLUENCING RENAL REABSORPTION OF BICARBONATE

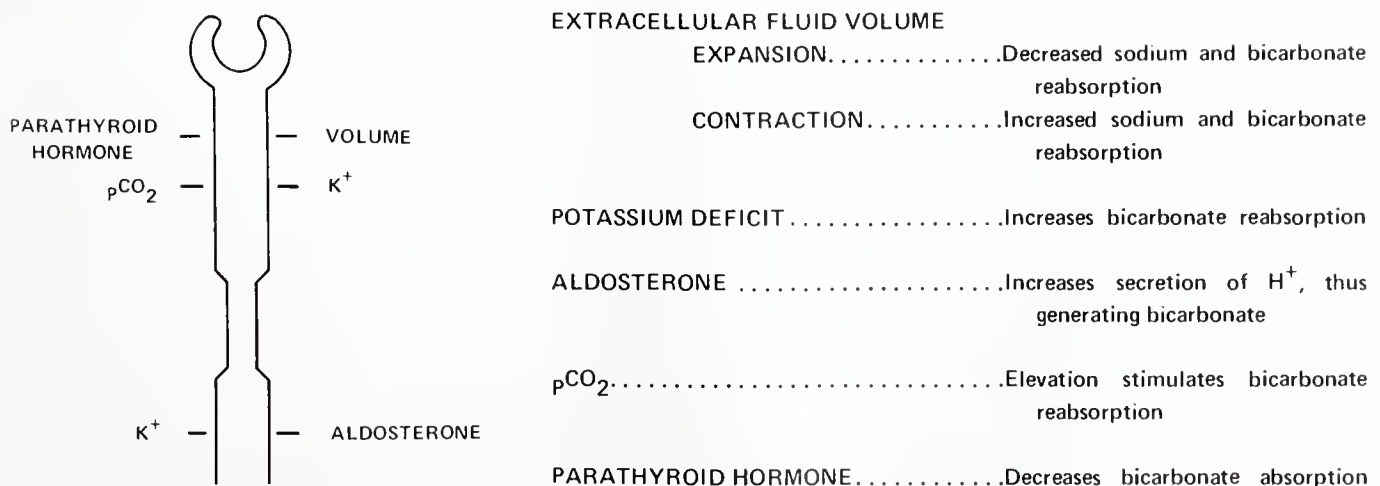


Figure 2. Bicarbonate reabsorption by the kidney.

TABLE 1
PATHOGENESIS AND TREATMENT OF METABOLIC ALKALOSIS

GENERATION	MAINTENANCE	TREATMENT
LOSS OF H^+		
• In vomitus or gastric aspirate	Volume contraction K^+ deficit	Volume expansion (saline) K^+ repletion
• In urine Primary or secondary aldosteronism	Primary —Excess aldosterone K^+ deficit Secondary—Contracted <i>effective</i> volume K^+ deficit	Primary —Replete K^+ Restrict Na^+ Secondary—Replete K^+ Improve cardiac output Stop diuretics
• Into cell K^+ deficiency	K^+ deficiency Often accompanied by volume contraction	Replete K^+ Volume expansion (saline)
• In stool Congenital alkalosis with inability to absorb Cl^- in ileum. Loss of Na^+ and K^+ with Cl^-	K^+ deficit Volume contraction	Replete K^+ Saline
EXCESSIVE HCO_3 ADMINISTRATION	K^+ deficit	Replete K^+
CONTRACTION ALKALOSIS Diuretic induced loss of $NaCl$ without loss of HCO_3	Contraction of <i>effective</i> ECF volume	Improve circulatory status
POST-HYPERCAPNIC ALKALOSIS Rapid lowering of chronically elevated pCO_2	Contraction of ECF volume Absolute or effective	Saline

In either primary or secondary aldosteronism metabolic alkalosis may occur. In primary aldosteronism with continued and autonomous production of excess levels of aldosterone, alkalosis may require vigorous potassium therapy to halt continued excretion of hydrogen ion and bicarbonate reabsorption. Sodium restriction diminishes the sodium load presented to the distal, aldosterone-mediated exchange site and thus diminishes potassium and hydrogen ion excretion. A far more common problem is the alkalosis of secondary aldosteronism. It typically is seen in the patient with congestive heart failure or cirrhosis who receives diuretic therapy. In either of these states a contracted *effective* volume stimulates sodium and bicarbonate reabsorption in the proximal tubule. Diuretic therapy, either with one of the so-called loop diuretics (furosemide or ethacrynic acid) or a thiazide, blocks sodium reabsorption at sites proximal to the point in the tubule where aldosterone acts. By thus increasing the sodium load presented to the aldosterone-active site, the stage is set for increased potassium and hydrogen ion secretion at that point. These ions are secreted in exchange for reabsorbed sodium, the process being accelerated by the high levels of aldosterone. Thus three factors are

operative in generation and maintenance of the alkalotic state:

- 1) Volume contraction increases proximal bicarbonate reabsorption.
- 2) Aldosterone stimulates hydrogen ion secretion and bicarbonate reabsorption distally.
- 3) Aldosterone accelerates potassium secretion distally. Low levels of potassium also act to increase bicarbonate reabsorption.

Successful therapy depends upon improving cardiac output, that is correcting the contracted *effective* volume and potassium repletion. Improvement in cardiac output and correction of the effective volume deficit will serve to decrease the stimulus to increase aldosterone production.

With potassium deficit there is loss of hydrogen ion into the intracellular space. As potassium levels in the extracellular fluid fall, potassium from intracellular stores moves outward into the extracellular field. Electroneutrality is maintained by movement of hydrogen ion into the cell. Bicarbonate level in the extracellular fluid then rises. The elevated bicarbonate may be maintained by the effect of potassium deficiency on proximal and distal tubular bicarbonate reabsorption. Potassium losses are often accompanied by sodium and water losses, thus volume contrac-

tion may also complicate potassium deficiency. Potassium repletion and volume expansion with saline are effective modes of therapy.

Congenital alkalosis with inability to absorb chloride in the ileum is a rare disorder that is present from birth. Sodium and potassium losses lead to potassium deficit and volume contraction, thus maintaining the alkalotic state generated by excess bicarbonate.

Excessive bicarbonate loading in a normal subject produces only mild alkalosis if any at all. It may lead to potassium deficiency, however. Excretion of large amounts of bicarbonate in the urine obligates cation and thus increased amounts of potassium and hydrogen ion may be lost in urine. This leads to generation of an alkalotic state. Potassium deficit perpetuates or maintains the alkalotic state. Potassium repletion is effective therapy.

Contraction alkalosis is seen in patients who have undergone vigorous diuresis. As illustrated in *Figure 3* under the influence of diuretic therapy the extracellular fluid volume may "contract" around a stable bicarbonate content so that an elevated bicarbonate concentration is produced. Why, if the kidney excretes sodium and water with diuretics, does it not excrete the elevated levels of bicarbonate? The answer lies in the influence of the *effective* extracellular fluid volume on the proximal tubule. The abnormality that has produced the edematous state also serves to stimulate sodium and bicarbonate reabsorption in the proximal tubule. Thus, the elevated bicarbonate level is maintained and the alkalotic state is perpetuated until circulatory status is improved and the effective extracellular fluid volume is expanded. At that time bicarbonate is excreted and the alkalotic state corrected. Acetazolamide reduces sodium and bicarbonate reabsorption by inhibiting the action of carbonic

anhydrase (see *Figure 1*). Impaired reabsorption of bicarbonate and excretion of an alkaline urine act to correct systemic alkalosis.

Post-hypercapnic alkalosis occurs when a chronically elevated carbon dioxide tension ($p\text{CO}_2$) is rapidly lowered. Patients with chronic pulmonary disease who are unable to excrete carbon dioxide normally experience a rise in the carbon dioxide tension of the body fluids. The elevated $p\text{CO}_2$ stimulates renal absorption and generation of bicarbonate. This is a beneficial compensatory mechanism that tends to minimize changes in pH. Patients with severe pulmonary disease and carbon dioxide retention would have a much greater degree of acidosis without this compensatory mechanism. Thus it is common to see a patient with chronic pulmonary disease enter the hospital with moderate respiratory acidosis, an elevated $p\text{CO}_2$, and a bicarbonate level in the mid-thirties. If the $p\text{CO}_2$ is rapidly lowered by tracheal toilet, suctioning, or intubation and artificial ventilation, the pH may rapidly rise to an alkalotic level. This occurs because changes in $p\text{CO}_2$ have occurred more rapidly than does the renal excretion of bicarbonate. Thus the patient is left with an elevated bicarbonate level, a near normal $p\text{CO}_2$, and hence a pH in the alkalotic range. If potassium stores are adequate and the circulatory status is normal, the elevated bicarbonate levels will be excreted and the pH will be returned to normal within a matter of hours. However, if the patient suffers from cor pulmonale with a reduced cardiac output, or if the patient is hypovolemic for whatever reason, then a stimulus to increased bicarbonate reabsorption persists and alkalosis may be perpetuated. Therefore the physician must assure himself that volume is adequate and not hesitate to judiciously infuse saline to achieve this goal. Otherwise, the alkalotic state remains. Its importance lies in the fact that occasionally this situation is complicated by convulsive seizures; secondly, alkalosis, if severe, may contribute to hypoventilation.

It may be seen from reviewing the factors that generate and maintain the alkalotic state that the state of the extracellular fluid volume and of body potassium stores are prime determinants in controlling bicarbonate reabsorption. Of the two, extracellular fluid volume appears to be the more important.

In patients with circulatory failure or cirrhosis there may be a greatly increased extracellular

CONTRACTION ALKALOSIS

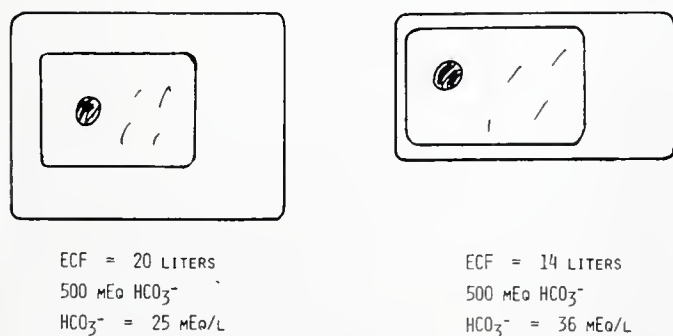


Figure 3.

Contraction alkalosis after diuretic therapy.

fluid volume but a contracted *effective* volume. This may be due to a reduced cardiac output, to portal hypertension with compartmentalization of extracellular fluid as ascites, or to a reduced blood volume associated with hypoalbuminemia as in the nephrotic syndrome. In these states infusion of saline may be futile or dangerous. In such patients the alkalosis is mild and may be left untreated. If there are urgent reasons to treat the alkalosis, such as confusion, stupor, or delirium as may occur rarely in severely alkalotic patients, one of three approaches is possible:

- 1) Ammonium chloride may be given. This may be risky in patients with cirrhosis or in patients with hepatic congestion secondary to heart failure. Hepatic coma may be precipitated by the increased ammonia load provided.
- 2) Dilute hydrochloric acid can be given. If used, it should be given slowly in a large central vein. It carries the risk of phlebitis and hemolysis.
- 3) The patients may be given acetazolamide or Diamox.

This latter approach is felt to be the safest and the preferable one.

In patients with very severe potassium deficiency or in patients with excess aldosterone production, alkalosis is refractory to volume expansion with saline and requires vigorous potassium repletion. This condition has been termed "saline-resistant" alkalosis.

In summary, metabolic alkalosis is characterized by an elevated bicarbonate level in the extracellular fluid. It may be generated in several ways, including loss of hydrogen ion, loss of potassium, by contraction of the extracellular fluid volume consequent upon loss of sodium chloride without loss of bicarbonate, or by rapid reduction of a previously chronically elevated carbon dioxide tension.

Maintenance of alkalosis depends upon the renal retention of bicarbonate. The important factors leading to increased renal tubular reabsorption of bicarbonate are a contracted extracellular fluid volume, potassium deficit, or excess mineralocorticoid.

Volume expansion with saline is effective in decreasing bicarbonate reabsorption and correcting alkalosis in most cases. In patients with severe potassium deficiency or with primary aldosteronism, potassium repletion is essential for correction of alkalosis.



Acute and Chronic Alcoholism

Edmund B. Flink, M.D., F.A.C.P.*

Alcoholism, although it is an important illness, is seldom considered until the victim has very serious trouble. I shall cite some startling statistics, which should command everyone's attention and concern. Let's look at the crimes of violence. Various regional statistics are generally of the same order of magnitude. The following statistics from California are worth repeating: 64% of homicides (70% on weekends when drinking is the heaviest), 69% of beatings with fists, feet or blunt instruments, 72% of stabbings, 55% of shootings, 67% of sexually aggressive acts against children, 39% of sexual acts against women, 30% of suicides, 50% of fatal automobile injuries, 20% of fatal non-commercial and non-military aircraft accidents, 36% of pedestrian accidents, 40% of snowmobile accidents, 53% of fire deaths, 45% of drownings, 56% of fights and assaults in the home, 22% of home accidents, 20% of narcotic deaths, and 55% of all arrests in California are the violent incidents in which alcohol has a major role. From North Carolina the following statistics are reported: 65% of victims of violent deaths had been drinking; 70% of homicide victims had been drinking; 80% of pedestrians 15 years and older killed had an average blood alcohol level of 250 mg./dl. Alcohol overdose caused 200 deaths in one year out of a total of 5,000 violent deaths.

The National Institute of Mental Health Survey in 1972 reports the following statistics: 26% of all admissions to state and county mental hospitals are alcohol related; 40% of admissions of persons between 35 and 64 to mental hospitals are alcohol caused; and, worse yet, 60% of males between 35 and 64 admitted to mental hospitals are alcohol related. Now one alcoholic in four is a woman; a decade ago one in nine was a woman. Alcoholism is the fourth most common cause of death of persons between 30 and 60.

The industrial costs are enormous. Dun and Bradstreet has estimated that the cost of alcoholism to U.S. industry is 7.5 billion dollars annually. There has been a 15% increase in absenteeism due to illness, real or falsely claimed, in the past 15 years, and the highest incidence is on Monday. Alcohol is a major cause of this in-

crease. The social cost is disruption of family, divorce, economic disaster of families and overwhelming unhappiness is unmeasurable, but it exceeds all that I've said before.

Regardless of the true ultimate statistics, the disease is underdiagnosed, covered up, missed, misdiagnosed, and ignored in the early stages of illness when the consequences are still reversible. One reason for underdiagnosis is confusion about criteria for diagnosis. There is no generally accepted definition of alcoholism until the devastating, often terminal illness such as cirrhosis is evident. There is a great resistance to treatment of alcoholism. Doctors are often unwilling to treat or care for patients suffering from alcoholism until serious illness occurs, and then it becomes somewhat respectable. House-staff, students, emergency room physicians tend to ignore such patients. However, satisfaction can be derived from caring for these patients. There are many more 10 year survivors from this illness than from cancer or other serious diseases.

The events leading to addiction and recovery are known. The first step is occasional relief drinking, leading to an increase in alcohol tolerance, constant relief drinking, onset of memory blackouts, surreptitious drinking, increasing dependence on alcohol, inability to discuss problem, drinking bolstered with excuses, grandiose and aggressive behavior, persistent remorse, loss of other interests, avoidance of family and friends, working and money troubles, tremors and early morning drinking, physical deterioration, drinking with inferiors and, finally admission of complete defeat with obsessive drinking continuing in vicious circles. This could be the end of the road. If recovery is to occur, the patient must have an honest desire for help, progressing to the realization that alcoholism is an illness, the onset of new hope, rebirth of ideals, and finally regaining confidence of employers and friends and the reestablishment of social stability.

The establishment of criteria for the diagnosis of alcoholism has been difficult. Certainly a person who has financial, social and health problems from frequent drinking of any type of alcohol beverage must be considered to have alcoholism. The National Council on Alcoholism has published fairly elaborate criteria. These

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criteria are divided into a minor group and a major group with clinical and physiological findings and behavioral, psychological and attitudinal findings. The behavioral, psychological and attitudinal criteria are probably the most important because these relate to primary reasons for excessive use of alcohol. I refer you to the original source.

The Department of Psychiatry and Psychology of the Mayo Clinic developed a brief, simple test for administering to patients. The test has only 34 short and simple questions. A response was considered to be positive if 8 or more questions are answered as would be expected of a patient with alcoholism. The test has been tried in a general medical setting and has uncovered many patients who had been hiding their alcoholism.

There is no consensus about causes, effective prevention or treatment of alcoholism, but the pathology and chemical findings of terminal illness are generally uniformly agreed upon. As an illustration of the complexities of this subject, there is a five volume series called *The Biology of Alcoholism* (Plenum Press).

Specific medical, neurological and psychiatric sequelae include: alcohol-induced hypoglycemia, folate-deficient megaloblastic anemia, alcohol-induced anemia and thrombocytopenia, fatty liver, acute alcoholic hepatitis, hepatic cirrhosis of Laennec's type, peripheral neuritis and more serious central nervous system syndromes such as central pontine myelinolysis, cerebellar degeneration, toxic amblyopia, Wernicke's and Korsakoff's syndromes, Marchiafava-Bignami syndrome, dementia alcoholica, acute withdrawal syndromes including delirium tremens, and the fetal alcohol syndrome, a very striking phenomenon which was just recently recognized by Jones and Smith at Seattle.** Variants of the syndrome probably occur. It is reminiscent of the damage that results from magnesium (Mg) or zinc (Zn) deficiency in pregnant mice and rats.

Six hundred ml. of 86 proof whiskey have 1500 calories; these are mainly empty calories. Alcohol has a direct toxic effect. When 2000 calories from alcohol plus 2000 calories per day from a regular diet are eaten, the subjects gained no weight in 30 days. On the other hand, 2000 calories from chocolate plus 2000 calories from a regular diet resulted in a 3 kg. weight gain in 20 days. Alcohol probably does contribute somewhat to obesity, but minimally. Alcoholism induces vitamin B₁₂

malabsorption in some subjects and commonly produces folate deficiency. Alcohol has a direct effect on bone marrow elements, particularly normoblasts and megakaryocytes. The anemia of alcoholism is characterized in part by appearance of ring sideroblasts and abundant bone marrow iron.

When normal subjects are fed a diet which is composed of 40% of calories from alcohol and the rest as a low-fat high-protein diet, striking fatty metamorphosis develops in less than three weeks. A high protein low fat diet does not prevent fatty metamorphosis, but there is no doubt that protein or methionine deficiency enhance fatty metamorphosis. Alcohol produced swelling and disfiguration of mitochondria and disorientation of cristae of mitochondria. Oxidation of acetaldehyde which is the first product of oxidation of alcohol occurs in mitochondria. Acetaldehyde is toxic and damages the mitochondria of the liver, brain and heart. The rough endoplasmic reticulum or microsomes appear to be decreased with resulting adverse effect on protein synthesis. The smooth endoplasmic reticulum proliferates, resulting in increased lipoprotein metabolism and induction of enzymes active in detoxification of drugs. As a consequence hyperlipemia and increased tolerance of drugs occur.

There is an increased ratio of NADH to oxidized NAD. This altered equilibrium results in change in carbohydrate metabolism, an increase in alpha glycerol phosphate, and more glycerin for triglyceride. Alcohol shunts metabolic processes away from gluconeogenesis by impairing uptake of precursors, channeling precursors away from gluconeogenic pathways, and inhibiting enzymes directly. It preempts co-factors and suppresses mitochondrial processes that facilitate gluconeogenesis; this accounts for hypoglycemia of the alcoholic subjects.

Until recently, I have been primarily interested in the acute withdrawal syndrome and in the end stages of alcoholism. Psychiatrists have been the leaders in the overall treatment and concern about alcoholism. The importance of alcoholism as one of the major health problems in this country and the world cannot be overemphasized.

My interests in serious acute illnesses produced by alcoholism dates back to 1951, when I observed a patient with malnutrition associated with magnesium deficiency. In 1952, similar manifestations resulted in finding hypomagnesemia in a patient

**Lancet 2: 999-1001, 1973.

with chronic alcoholism and the withdrawal syndrome. Our group has been able to describe the following evidence of magnesium deficiency in chronic alcoholism: significant hypomagnesemia occurs after prolonged alcohol ingestion; a positive magnesium balance is measurable in the recovery phase; acute alcohol ingestion more than doubles renal excretion of magnesium; decreased exchangeable magnesium (28_{Mg}), which is found regularly in alcoholic patients during withdrawal, is corrected on recovery from the withdrawal reaction; the concentration of magnesium in muscles of alcoholics is decreased, and magnesium concentration is decreased in brain and muscle but not in bone of rats fed alcohol chronically. Stendig-Lindberg*** has recently found evidence that alcoholic encephalopathy occurs primarily in those alcoholic patients with distinct hypomagnesemia and has evidence that prolonged treatment of alcoholic encephalopathy with oral $Mg(OH)_2$ significantly improved status for a five year period compared with a control group. This evidence lends further support for magnesium therapy. Although some patients respond in a spectacular manner to $MgSO_4$ given parenterally, some fail to respond and are like the untreated controls.

We have sought other factors which could be responsible for hypomagnesemia, and looked for a chelating agent which could effectively lower Mg ion concentration. Citrate chelates Ca and Mg, but the citrate level in the plasma of patients with alcohol withdrawal was not different from that of controls.

The concentration of long chain free fatty acids (FFA) was studied in postoperative patients who developed an alcohol withdrawal syndrome. The levels were elevated in all patients, but were distinctly lower in those who died. The magnesium and calcium salts of oleate, stearate and palmitate are very insoluble at concentrations of FFA, Mg and Ca which occur *in vivo*. [The precipitate which forms when soap (sodium and potassium salts of long chain fatty acids) is used with hard water (Mg and Ca salts) and results in the ring on the bath tub is a similar phenomenon.] Thus FFA could well be the responsible chelating agent.

In a group of 17 patients with alcohol withdrawal syndrome, the FFA levels were as follows: 1127 $\mu\text{eq/L}$ at 0 time, 1081 $\mu\text{eq/L}$ at 12 hours, 794 $\mu\text{eq/L}$ at 24 hours, 855 $\mu\text{eq/L}$ at 36 hours and

725 $\mu\text{eq/L}$ at 48 hours. Zero time was arbitrarily set as the time of admission for treatment of alcohol withdrawal. The severity of symptoms are roughly correlated with plasma FFA level. In another group of 12 patients from the Lemuel Shattuck Hospital with acute alcohol withdrawal syndrome, the mean plasma FFA concentration was 1180 $\mu\text{eq/L}$ with values as high as 2200. On the other hand the plasma FFA level of 10 patients still severely intoxicated was 476 $\mu\text{eq/L}$. This latter finding needs emphasis. Alcohol has strong anti-lipolytic action, so it is important to make the observations after alcohol has been cleared from the circulation. The fasting plasma FFA in 15 normal adults was 458 $\mu\text{eq/L}$ and the post-prandial FFA level in 14 normal adults was 300 $\mu\text{eq/L}$.

Magnesium salts of FFA are very insoluble in Na Cl solutions isotonic with plasma. It is possible to show that the divalent cation concentration is reduced in a linear manner when Na oleate is added to serum by measuring the divalent cation concentration using Orion electrode. The decrease is 0.54 units with 1.0 mEq of Na oleate/L and an additional decrease of 0.59 units with 2.0 mEq of Na oleate/L. There is no doubt that fatty acid ions decrease divalent cation concentration *in vitro*. [When Naoleate is added to normal serum or plasma, there is no visible precipitate.]

In order to study FFA under controlled conditions, dogs were given 6 to 8 gm/kg/day of alcohol for 7 to 10 days and then withdrawn. All exhibited a striking rise in FFA.

We now have a model in which we can effectively study alcohol withdrawal under controlled conditions. An obvious goal is to see what stopping lipolysis and decreasing FFA will do for the withdrawal syndrome. Modern therapy using electrolyte replacement therapy and chlordiazepoxide (Librium) or diazepam (Valium) has resulted in control of symptoms and signs and a very low mortality. In spite of this, prolonged hospitalization often is needed. Deaths result mainly, but not always, from surgical and medical complications occurring simultaneously in patients with an alcohol withdrawal. Prolonged elevation of FFA could have serious consequences in the brain and other tissues if the hypothesis is correct. In severe illness not related to alcohol, high FFA levels could be deleterious. For instance, in myocardial infarction, FFA is regularly

***Acta Psychiat. Scand. 50: 465-480, 1974.

elevated and chelation of Mg and Ca could be a factor in the arrhythmia of myocardial infarction.

In summary, alcoholism is a very serious illness, has many serious social and health consequences, and is a leading cause of death from disease and violence. The cause or causes of alcoholism are not specifically known but do have behavioral and psychological background. There may be genetic and metabolic factors which account for an exaggerated craving for alcohol and resultant addiction. The biochemical disturbances and pathological changes of brain, liver, heart, muscle,

and blood forming organs are well known. Long chain fatty acids may play a crucial role in some of the manifestations of alcohol withdrawal as a result of chelation of ions of Mg and Ca. This hypothesis needs further rigorous testing. Prevention of alcoholism is clearly the most important approach in management of this important problem; we should also attempt to recognize alcoholism earlier, establish acute treatment centers for detoxification, encourage group therapy—Alcoholics Anonymous, etc.—and encourage research on this important subject.



The New Antibiotics: Trimethoprim - Sulfamethoxazole (TMP-SMZ)

Charles M. Nolan, M.D.*

A unique new antibiotic has recently been approved by the Food and Drug Administration for use in the United States. It consists of the sulfonamide antibiotic sulfamethoxazole and trimethoprim, an analog of methotrexate. These two drugs are combined in a fixed ratio and marketed as Bactrim (Roche) and Septra (Burroughs-Wellcome). Trimethoprim-Sulfamethoxazole (TMP-SMZ) deserves consideration in this symposium on new antibiotics for several reasons. Firstly, it is a truly new and separate antibiotic and not, as many others recently introduced, merely a minor modification of an existing drug. Secondly, the story of its discovery is unique in the annals of antibiotic evaluation. Thirdly, it promises to be a valuable antibiotic, if used properly.

HISTORY

TMP-SMZ was developed through application of knowledge about essential metabolic pathways of bacteria. Bacterial cells, as well as those of mammals, synthesize DNA and RNA by a process in which tetrahydrofolate (THF) is an essential cofactor (Figure 1). Man synthesizes THF from folate supplied by his diet; dihydrofolate (DHF) is the intermediate compound in its synthesis. Bacteria, however, must synthesize DHF directly, because their cell walls are impermeable to exogenous folate. Scientists reasoned that a potent antibiotic could result from the sequential blockade of the two steps of bacterial THF synthesis.

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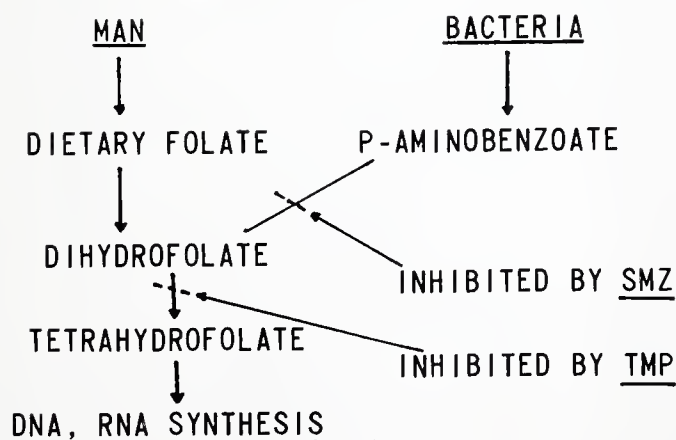


Figure 1.

Mechanism of action of TMP-SMZ: Sequential blockade of bacterial folate metabolism.

The sulfonamide group of drugs were known to inhibit the first step by inhibiting the conversion of p-amino-benzoate to DHF; while another group of drugs, the diaminopyrimidines, were known to be potent inhibitors of mammalian dihydrofolate reductase (DHF), the enzyme catalyst of the second step. Extensive experimentation uncovered a drug, trimethoprim, from the latter group which had an affinity for bacterial DHF 50,000 times greater than that for the mammalian enzyme. Extensive research ensued, resulting in the development of TMP-SMZ. Sulfamethoxazole was chosen as the specific sulfonamide because its pharmacologic properties resemble those of trimethoprim.

Each TMP-SMZ tablet contains 400 mg SMZ and 80 mg TMP. This ratio was selected because it yields the optimum synergistic antibacterial effect. Blood levels of TMP-SMZ persist sufficiently after oral administration such that one or two tablets, given every 12 or 24 hours, is an adequate regimen for infections due to susceptible bacteria.

The rational, deductive experimental approach which led to the development of TMP-SMZ is a landmark in antibiotic research. It stands as an example for future work in this field.

BACTERIAL SPECTRUM

TMP-SMZ has a broader spectrum of antibacterial activity than any known antibiotic (Table 1). Organisms susceptible to TMP-SMZ *in vitro* include most of the major gram-positive and gram-negative pathogens of man. However, several species of bacteria are resistant to TMP-

TABLE 1
Bacterial Spectrum of TMP-SMZ

<i>Sensitive Bacteria</i>	<i>Resistant Bacteria</i>
Staphylococci	Pseudomonas
Streptococci	Enterococci
Hemophilus	Anaerobes
E. Coli	
Klebsiella	
Proteus	
Salmonella	
Shigella	

SMZ; among the most clinically important resistant organisms are *Pseudomonas aeruginosa*, group D streptococci (enterococci), and all obligate anaerobic bacteria, including the genera *Clostridia* and *Bacteroides*. *Mycobacterium tuberculosis* and fungi are also resistant to the drug.

CLINICAL EXPERIENCE WITH TMP-SMZ

Extensive clinical evaluation of TMP-SMZ has taken place during the past eight years in England, Europe, and the United States. That experience shows that results with TMP-SMZ in a given infection correlate well with results of *in vitro* sensitivity tests: infections due to organisms susceptible *in vitro* respond to the antibiotic; those due to bacteria resistant *in vitro* do not. In particular, respiratory infections, urinary infections, and skin and soft tissue infections due to susceptible bacteria respond readily to TMP-SMZ. The antibiotic has not been sufficiently evaluated in serious types of infection, such as endocarditis, osteomyelitis, and bacteremia; parenteral therapy is usually required for these cases, and a parenteral form of TMP-SMZ is not now available to practicing physicians.

INDICATIONS FOR USE OF TMP-SMZ

At the present time there is only one approved use for TMP-SMZ in the United States: treatment of chronic urinary tract infection due to susceptible bacteria. Chronic urinary tract infections occur primarily in individuals who are middle-aged and older. In males, these infections are usually associated with structural abnormality of, or foreign body within, the urinary system. Common predisposing conditions are prostatic enlargement and urinary calculi; their correction often permits eradication of the infection. In females, chronic urinary infections are not usually associated with identifiable underlying problems. Moreover, they are quite common, with a prevalence rate of 2-5% among middle-aged women. Although the long-term sequelae of chronic urinary infection, if any, are unknown, this condition is bothersome to the host; periodic episodes of dysuria may occur as many as five to ten times per year, upon a background of intermittent or continuous asymptomatic excretion of bacteria in the urine. Several well-controlled studies show that TMP-SMZ is superior to other agents of choice in the treatment of chronic urinary tract infection. For example, one representative study reported the virtual abolishment of symptomatic dysuria during administration of one-half tablet of TMP-SMZ daily

to 40 females with chronic urinary infection during a three-month trial (N. Eng. J. Med. 291:597, 1974). On the basis of uniform excellent results such as these, most authorities now consider TMP-SMZ to be the agent of choice in chronic urinary tract infection, when therapy for this condition is indicated.

TOXICITY OF TMP-SMZ

Side effects occur during the administration of TMP-SMZ, as they do with virtually every pharmacologic agent. However, those associated with TMP-SMZ are for the most part minor and no more frequent or bothersome than those attributed to ampicillin or the tetracyclines. The most common side effects are gastrointestinal (Table 2). The rash that occurs in a small percentage of patients taking TMP-SMZ is felt to represent a hypersensitivity reaction to the sulfonamide. Hematologic dyscrasias with TMP-SMZ have been carefully monitored because of the known antifolate action of the drug. Anemia, neutropenia, and thrombocytopenia have all been observed in association with TMP-SMZ therapy, but occur rarely and should not be a deterrent to its use. Patients whose folate stores are precarious (i.e., elderly, hospitalized patients and pregnant women) are at greatest risk of developing megaloblastic anemia during TMP-SMZ therapy. In such patients, therefore, indications for TMP-SMZ should be certain, and therapy, if undertaken, should be monitored carefully.

THE FUTURE OF TMP-SMZ

TMP appears to be a safe and effective antibiotic with a broad antibacterial spectrum; it could be prescribed for a wide variety of infections. However, a firm principle of antibiotic therapy is that increasing use of an antibiotic is inevitably associated with the emergence of bacteria which are resistant to it. Since the present reservoir of antibiotics available to the practicing physician is deep, it would be most rational to limit the use of TMP-SMZ. By withholding it in common problems such as upper respiratory in-

TABLE 2
Side Effects of TMP-SMZ

Minor (5-10%)
Nausea, Vomiting, Diarrhea
Rash
Glossitis, Vaginitis
Major (Rare)
Cytopenia

fections and acute, uncomplicated urinary tract infections, the emergence of bacterial strains resistant to TMP-SMZ will be minimized. Consequently, when infection due to an organism resistant to most other antibiotics is encountered, TMP-SMZ should remain effective.

This argument in favor of restricting the use of TMP-SMZ is more than theoretical, since there are several current examples of clinically important "multi-resistant" bacteria: (1) *Serratia marcescens*, a previously unimportant gram-negative enteric bacterium, is being isolated with increasing frequency in hospital-acquired infections, usually from patients with underlying illnesses. Many of these isolates are resistant to gentamicin, carbenicillin, chloramphenicol, cephalothin, and ampicillin; all continue to be sensitive to TMP-SMZ. (2) In Europe, 30% of all isolates of *Staphylococcus aureus* are now resistant to the penicillinase-resistant penicillins such as methicillin. There is every reason to

believe that this phenomenon will eventually occur in this country as well. TMP-SMZ is an attractive choice for therapy of infections due to methicillin-resistant staphylococci. (3) *Salmonella typhi* is usually sensitive to ampicillin and chloramphenicol. Recently, however, isolates resistant to these antibiotics have been recovered in cases of typhoid fever. TMP-SMZ has been successfully used to treat these patients.

CONCLUSION

TMP-SMZ is an interesting new antibiotic presently authorized only for treatment of chronic urinary tract infection. However, its broad antibacterial spectrum and apparent safety confer upon it the potential for extensive future use. If abuse of TMP-SMZ, and therefore wide acquisition of resistance to it, can be avoided, it should provide effective therapy for infections due to bacteria which are resistant to most other antibiotics.





ELECTROCARDIOGRAM

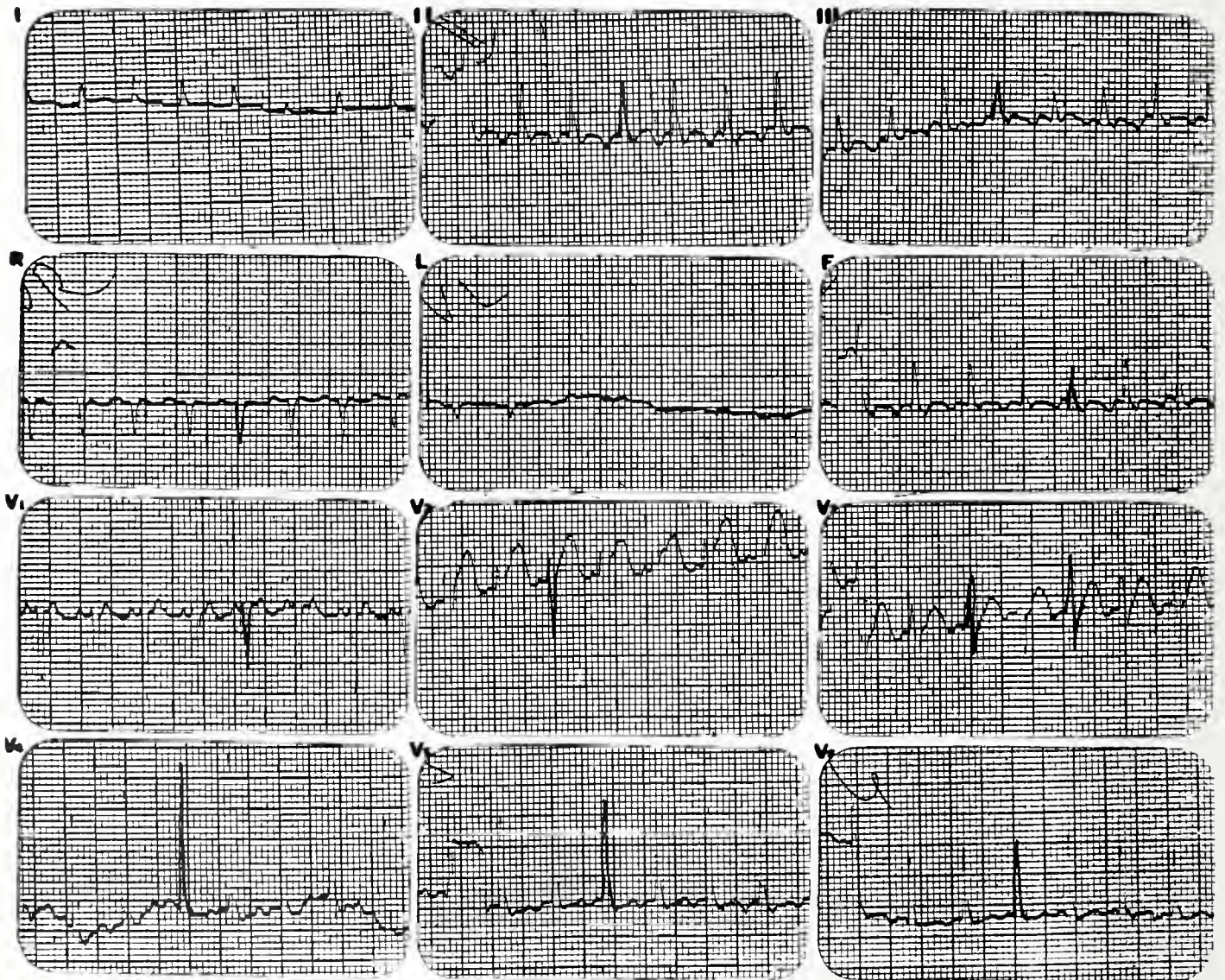
OF THE MONTH



The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 132)

A 59-year-old man was admitted with a diagnosis of pulmonary infiltrate due to unknown cause. Atrial blood gases were not significantly altered.



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Motorcycle Injuries: Problem Without Solution

C. Frank Dodson, Jr., M.D.*

INTRODUCTION

The purposes of the study were to: discern the pertinent facts related to causation of motorcycle accident-related injuries, investigate the particular types of trauma that occur in these accidents and render suggestions as how better to deal with these casualties.

METHOD

This study is based on findings gleaned from a review of the recent literature concerning motorcycle accidents and from a compilation of results of a survey conducted at three hospitals (St. Vincent's Infirmary, Baptist Medical Center, and the University Hospital) in Little Rock, Arkansas, from the period of September 1, 1975 through March 31, 1976.

The data were collected in both the emergency rooms and through the medical records sections. The data collection was reasonably complete, with the exception of the on-vs.-off roadway location of accidents, which had only a 50% response rate, so no attempt was made to derive a conclusion from this information. The raw data were: 106 accidents occurred involving 129 injuries, 73 occurring during daylight, 33 after dark; 77 were treated and released, 26 admitted to the hospital and one death occurred.

DISCUSSION

Although travel by motorized two wheel vehicle has been present in the United States since the early part of this century, it has experienced a phenomenal rate of increase in popularity during

the past twenty years. Five different phases of motorcycling injuries have been observed: period of stability, 1953-1962; period of rapid increase, 1963-1966; period of remission, 1967-1969; a period of resurgence, 1970-1972; and another period of stability, 1973-present.⁷

As seen from the above historical trend, the rapid growth of popularity of motorcycle travel noted in the mid-1960's has abated; however, the motorcycle has become an accepted part of contemporary American life. This form of transportation, especially those motorcyclists who utilize the public thoroughfares and are thus in direct relationship with other vehicular traffic, will continue to demand the attention of all physicians, especially the orthopaedic surgeon. Recognition and understanding of this continuing problem, with its peculiarities, is necessary for adequate response to the patients involved—both from the standpoint of direct medical care and from physician's influence on future legislation governing motorcycling.

MOTORCYCLE CHARACTERISTICS

The physical characteristics of the motorcycle are pertinent to our investigation. By virtue of its construction, the machine places its rider in an exposed, vulnerable situation, as there is no encompassing shell to separate the rider from the various perils of the environment, ranging from insects in the air to multi-axle heavy-duty transport trucks.^{5,7} The motorcyclist and his machine present a relatively small visual silhouette from either back, side or frontal view to other vehicle operators.^{5,7} In collision situations, the strength of the

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motorcycle, especially as related to the front fork mechanism, has been proven grossly inadequate to absorb energy in the quantities that are released on impact of the motorcycle with a larger object—so a great amount of energy is transmitted to the rider.⁷ In many instances this results in the rider being thrown clear of the motorcycle, frequently up and over the auto which the motorcycle strikes.² The lateral stability of the motorcycle is precarious, especially at low speeds—when the wheels are not turning at sufficient rotational velocity to produce the gyroscopic action which augments the stability of the moving cycle in the upright attitude.^{2,7} In general, the performance characteristics of motorcycles are similar to those of the automobiles surrounding it on the roadways, with the notable exception of more rapid acceleration; braking performance is essentially identical with automobiles. Although the inherent vertical instability of the motorcycle would appear to render it more susceptible to accidents caused by roadway surface defects, this has not been demonstrated to be statistically significant.^{5,8} When road surface conditions are a contributing factor, the most frequent hazard is loose materials present in unexpected locations.^{5,8} Other characteristics of motorcycles involved in accidents have been studied in great depth: suspected factors such as very large engine size, number of modifications to the motorcycle, age of the motorcycle, and mechanical defects have not proven to be frequently associated with the causation of motorcycle accidents.^{2,4}

SAFETY EQUIPMENT

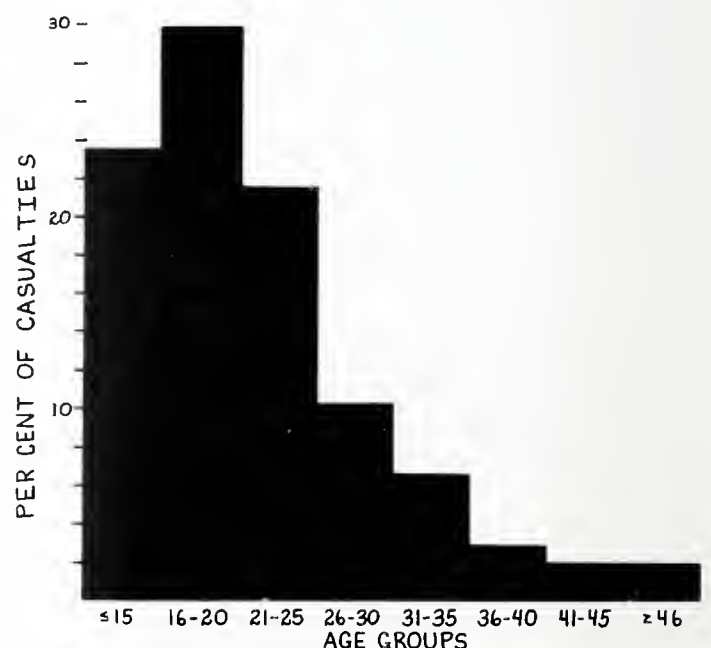
With reference to safety equipment used in motorcycling, the crash helmet has proven to be the only effective device in reducing the number of serious injuries. The helmet has been most notable in decreasing the number of fatal motorcycle accidents.¹ However, in the recent decade there has been considerable legislative turmoil related to the constitutionality of laws requiring the use of motorcycle helmets, as these have been interpreted as an infringement upon the personal freedom of the riders. In some states, legislation requiring helmet use has been passed and later repealed. This phenomenon has provided an illustration of the efficacy of helmet use: in Illinois, the helmet law was in effect for approximately seventeen months in 1968-1969, during which time there were 93 motorcycle-related deaths; in the nineteen months after the helmet

law was repealed, 208 deaths occurred, an increase of 112%.⁷ In a 1973 study by Buchannan, Bischoff and Richardson,¹ it was shown that motorcycle riders without helmets, having accidents at speeds of 35 m.p.h. or less, were seven times more likely to receive fatal head injuries than helmeted riders. In accidents at speeds of greater than 35 m.p.h., the unhelmeted rider was three times more likely to receive a fatal head injury. Historically, motorcycle riders prefer not to wear helmets unless legally bound to do so.⁷ The most frequent reasons cited are that helmets are bothersome to wear or are not felt to be needed as the rider was only going for a short trip.⁶ Other safety devices which have been tried include: crash bars, constant headlight and taillight illumination, safety vests and other reflective materials to increase the visibility of the rider; boots, gloves and leather clothing—but none of these adjuncts seems to have significantly affected accident statistics. Ironically, formal instruction in motorcycle riding has proven *not* to decrease the risk of accidents by cyclists—as a higher percentage of injured riders have had driver training.^{2,4,7}

MOTORCYCLE RIDER CHARACTERISTICS

With reference to the motorcycle riders, several in-depth studies have attempted to characterize the motorcyclist of today.

The general finding is that riders are predominantly adolescent or young adult males of essentially equal intelligence to nonmotorcycle riders.^{2,4,5,7,8,10} The injured are most often less



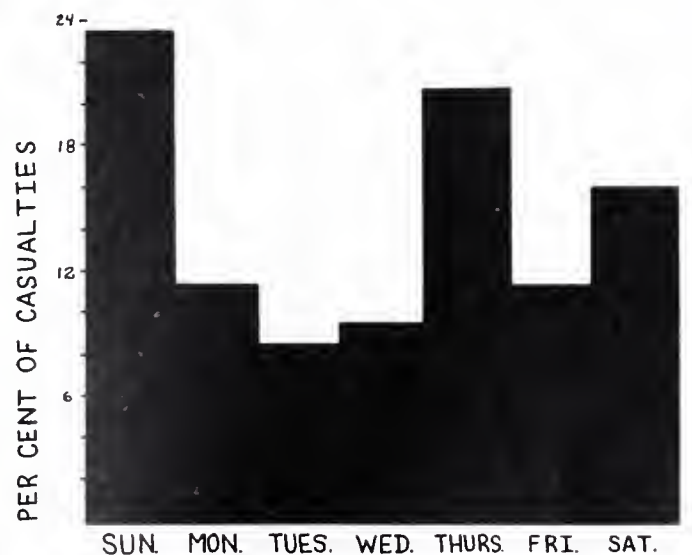
PER CENTAGE DISTRIBUTION OF MOTORCYCLE ACCIDENT CASUALTIES BY AGE GROUP

than 25 years old; as noted in our survey, 53.3% were less than 20 years.⁸ Physical characteristics fall into no set pattern. On psychological testing, using the MMPI, Waller found that college student cycle riders and their auto-driving counterparts registered slightly higher than normal on the hypomania and psychopathic deviate scales, and those characteristics were associated with poor driving records and delinquent behavior.¹⁰ Inexperience in motorcycle riding (less than 12 months) is repeatedly noted to be associated with cyclists involved in motorcycle accidents.^{4, 7, 10} Ready availability of rental cycles to neophyte riders has been noted to be closely related to high accident rates.⁷ The most frequent reason for cycle use is recreation, with commuting to work next most common.⁷ The use of intoxicants by cyclists involved in mishaps is quite low, being less than half that found in auto drivers in accidents.^{5, 9}

CHARACTERISTICS OF MOTORCYCLE ACCIDENTS

The largest single causative factor in cycle accidents has been identified as human behavior.⁸ The majority of motorcycle accidents are *multi-vehicular* and occur at intersections in *urban* areas on *dry pavement in clear or cloudy weather*.^{5, 8, 9} The collision occurs frequently when a motorcycle moving straight ahead strikes an automobile or truck which turns left in front of the cycle or pulls out in front of the bike.^{5, 8, 9} The *auto-motorist is often at fault* or in violation of traffic laws (43-62% of the time).^{5, 8, 9} One of the most frequent comments from the offending motorist is that he "did not see" the cycle and its rider.⁷ When the motorcyclist is culpable, the most frequent violations are: following too closely or exceeding the speed limit.^{5, 8, 9} However, ninety percent of all motorcycle accidents occur at speeds less than 50 m.p.h., and sixty percent of these accidents occur at less than 35 m.p.h.⁵ In motorcycle vs. auto-accidents, the *motorcyclist is injured 80-85% of the time*; the auto motorist is injured only 5% of the time.^{5, 7, 8} A motorcyclist is twenty times as likely to be killed in an accident as is an automobile driver.^{2, 7} The brand of motorcycle most frequently involved is Honda (currently the most popular motorcycle, representing 44% of all registered motorcycles). The engine size of machines most frequently involved is from 250-500 cc's (these being the most popular size cycles for

street and road travel).^{2, 4, 8} There seems to be an abnormally high frequency of relationship between the motorcyclist carrying a passenger and occurrence of an accident; especially when the accident is a rural, single-vehicle, nonintersection type mishap.^{2, 9} The inference here is that the presence of the passenger sufficiently changes the handling characteristics of the motorcycle to render it less controllable or places excessive stresses on the machine, resulting in mechanical failure.⁸ Motorcycle operators utilizing *multilane thoroughfares* are at a greater risk of incurring an accident.⁴ Most accidents occur during *daylight* hours, particularly those involving the cycle and another vehicle. Our survey revealed that 68.9% of the injuries occurred during the daylight, this correlates well with previous studies.^{5, 8} The time of day during which cycle-related injuries most frequently happen is *between 1:00 and 8:00 p.m.*^{2, 8} *Sunday* is consistently found to be the day of the week on which most motorcycle accidents occur.^{2, 5, 8} In our survey, 23.4% of the accidents were on Sundays with a total of 39.2% on weekend days. Interestingly enough, of the weekdays, Thursday consistently stands out as the peak day for accidents;⁵ 20.6% of our accidents occurred on Thursdays.⁸ In our review of the literature, no specific associative factor relating these accidents to Thursday could be delineated. With respect to seasons, most accidents happen during the spring, summer and early fall months.^{5, 8} This is reflected in our survey findings, although at the time of this presentation, only a seven month period has been evaluated.



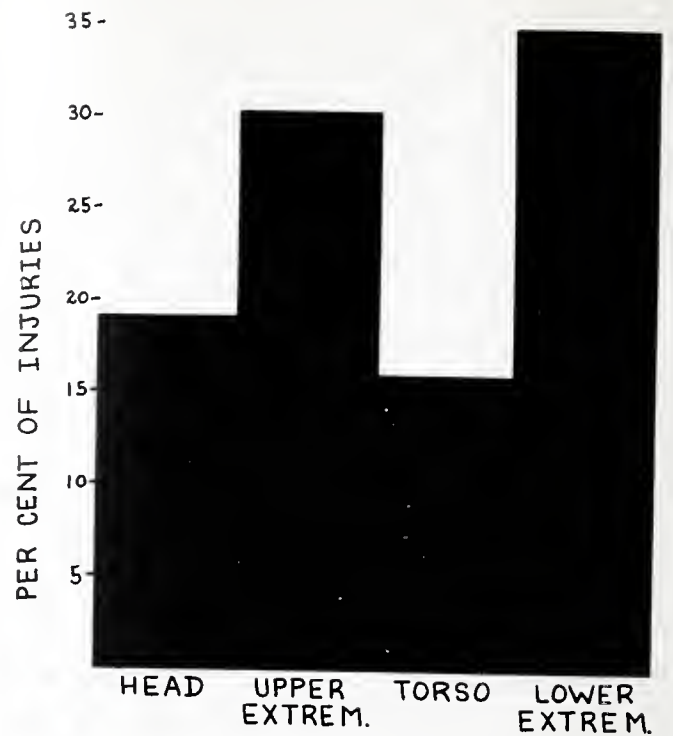
PER CENTAGE DISTRIBUTION OF MOTORCYCLE ACCIDENT CASUALTIES BY DAY-OF-WEEK



PER CENTAGE DISTRIBUTION OF MOTORCYCLE ACCIDENT CASUALTIES BY MONTH

CHARACTERISTICS OF INJURIES INCURRED IN MOTORCYCLE ACCIDENTS

One constant finding of several studies, including ours, reveals that persons injured in motorcycle accidents are very likely to have multiple injuries; especially those who sustain fractures.³ In our survey, we found that 72% of those with fractures had other injuries. Another noteworthy finding in our survey was that injuries involving a joint occurred in 34.9% of the casualties (44% of these joint injuries were denoted as sprains). Head injury occurred in 9.3% of our cases; this parallels findings in previous studies.^{1,3} Soft tissue injuries accounted for almost 35% of all lesions, 56% of which required suture. Fractures were found in 21.7% of the injured, one-fifth of which were classed as open fractures. Historically the lower extremity is involved more frequently than the upper extremity.³ In the study by Drysdale, et. al., in 1975, bones of the leg were shown to be the most frequently fractured in motorcycle injuries, followed by bones of the hand-wrist complex.³ The most frequent cause of fatalities in cycle accidents is head injury, followed by intrathoracic and intra-abdominal injuries.^{2,3,4} In the categories of treatment, we found that 74% were handled on an out-patient basis, being treated and released from the emergency room; 25% were admitted to the hospital, and one fatality was recorded. Similar findings were noted in



PER CENTAGE DISTRIBUTION OF MOTORCYCLE ACCIDENT INJURIES BY AREAS OF THE BODY

foregoing analyses.^{2,9}

Studies evaluating hospitalization of injured cyclists reveal average in-patient stays between 6-12 days.³ Disability from cycle-related injuries is reported in three-fourths of the casualties,^{2,3} with the median number of days of activity restriction being 29.4.² Death rates from cycle accident injuries range from 1-2.7%.^{2,5,8,9} Regarding death rates, in some areas there has been an average of one death per year for each 1,000 registered cycles²—in 1975 there were 36,918 registered cycles in Arkansas and twenty-six fatalities (1 per 1419).³

RECOMMENDATIONS

In an attempt to deal with the continuing problem of motorcycle accidents, several approaches are possible. Legislation to decrease the risk of accidents is certainly one means by which accident rates could be controlled. From our analysis of the factors which seem to contribute most to motorcycle accidents, the juvenile rider seems to be at greatest risk, due to his state of judgmental immaturity and lack of experience in complex traffic situations. This observation implies that raising the lower age limit for cyclists to greater than 20 years could be beneficial. More stringent licensing requirements, such as demonstration of proficiency in cycle handling control in complex and difficult situations and of satisfactory mechanical condition of the cycle, might

be implemented.⁹ The continued legality for cyclists to carry passengers appears to contribute significantly to accident causation and this practice could be abolished legislatively.⁹ Precluding ready availability of rental cycles to inexperienced riders appears quite easily justified. Lack of awareness of motorcyclists by automobile drivers sharing the public roadways appears to be quite a significant factor related to motorcycle injuries. Perhaps this trend could be altered by effective advertising through news media. An attractive solution would seem to be segregation of motorcycles from four-wheeled traffic on parallel cycle ways, however, instituting such a project would be expensive and difficult. A more drastic approach would be to limit motorcycle use to off-public-thoroughfare activities or possibly ban them entirely; however, due to the powerful industry influence these alternatives are probably unrealistic.

With regard to the direct medical management of injured motorcyclists, it is imperative to avoid focusing upon one outstanding injury; and thus fail to recognize other, more subtle injuries—which might be more life-threatening than the obvious fracture or laceration. Another very important item to consider in the details of accidents is the cyclists' safety helmet. Although laws requiring the use of the helmet may exist, it is essential to learn whether the cyclist was indeed wearing his helmet. If the force of the impact is sufficient, a patient may sustain a head injury with the helmet intact, however, the risk of significant head injury increases markedly if the helmet was thrown from the patient's head or structural failure of the helmet itself occurred. The possibility for lower limb trauma deserves a high index of suspicion and should be checked for routinely.

SUMMARY

Motorcycle accidents most frequently involve adolescent or young adult males riding on weekends or Thursday during the afternoon or evening hours in ideal driving conditions. Frequently the colliding auto motorist is at fault, but the cyclist is injured in 80-85% of collisions. The cycle related injuries result in disability 75% of the time. One death per year occurs for every 1,000-1,500 registered cycles.

Motorcycling appears to have reached its peak and declined slightly, but currently produces a significant amount of injury, disability and death—and its presently accepted form, will continue to

do so. Physicians may become involved with direct medical management of the injured, as informants concerning the problem to civic groups, and as consultants to legislators concerned with reduction of the injuries related to cycling. We would invite you to consider the recommendations suggested in our study in your relationship to motorcycling.

ACKNOWLEDGEMENTS

Sincere appreciation is expressed to Mr. Bill Brett of St. Vincent's Infirmary, Mr. Jim Williams of the Baptist Medical Center, and the Emergency Room and Medical Records personnel of the University of Arkansas for Medical Sciences Hospital for their assistance in data collection.

BIBLIOGRAPHY

1. Buchanan, L. S., Bischoff, D. C., and Richardson, H. A.: "A Preliminary Analysis of Safety Helmet Effectiveness". Proceedings of the International Congress of Automotive Safety. July 16-18, 1973. San Francisco, California, pg. 169.
2. Kraus, J. F., Riggins, R. S., Drysdale, W., and Franti, C. E.: "Some Epidemiologic Features of Motorcycle Injury in a California Community". Proceedings of the Second International Congress on Automotive Safety, July 1973, San Francisco, California, pg. 31.
3. Kraus, J. F., Riggins, R. S., Drysdale, W., and Franti, C. E.: "Injury Patterns in Motorcycle Collisions". *Journal of Trauma*, Vol. 15, No. 2, pg. 99, 1975.
4. Kraus, J. F., Riggins, R. S., Drysdale, W., and Franti, C. E.: "Risk Factors in Motorcycle Collision Injuries". Departments of Community Health and Orthopaedic Surgery, School of Medicine, University of California, Davis, California 95616, 1975.
5. Griffin, L. I.: "Motorcycle Accidents: Who, When, Where and Why". University of North Carolina Highway Safety Research Center, Chapel Hill, North Carolina. March 1974.
6. Nakamura, Norio: "The Role of Helmets in Motorcycle Accidents". Proceedings of the International Congress on Automotive Safety. July 1973, San Francisco, California, pg. 183.
7. O'Mara, J. J.: "Contributory Factors in Motorcycle Casualty Accidents". Proceedings of the Second International Congress on Automotive Safety. July 1973, pg. 59.
8. Reiss, M. L., Berger, W. G., and Vallette, G. R.: Analysis of Motorcycle Accident Reports and Statistics". Motorcycle Safety Foundation, 6755 Elkridge Landing Road, Linthicum, Maryland 21090. February 1974.
9. Waller, T. F.: "An Analysis of Motorcycle Accidents with Recommendations for Licensing and Operation". The University of North Carolina Highway Safety Research Center, Chapel Hill, North Carolina. August 1972.
10. Waller, T. F.: "Motorcycle vs. Automobiles: How Do Their Owners Differ?". University of North Carolina Highway Safety Research Center, Chapel Hill, North Carolina. June 1969.



EDITORIAL

Cardiac Abnormalities as a Manifestation of Other Disease

Alfred Kahn, Jr., M.D.

Heart disease is so dramatically associated with death that it continues, as it should be, to occupy a high interest among medical researchers.

In our zeal to make cardiac diagnoses, one may be led into a trap. Although myocardial infarction is usually due to arterio-sclerotic heart disease, this is not invariably so as pointed out by Cheitlin, McAllister and DeCastro (*Journal of American Medical Associates*, Volume 231, Page 951, March 3, 1975). This widely available article is must reading despite the fact that it ploughs no new ground. Their classification of infarction without arterio-sclerosis is as follows with five main headings: Coronary artery disease other than atherosclerosis including arteritis, trauma, coronary mural thickening and luminal narrowing; emboli to coronary arteries; congenital coronary artery anomalies; myocardial oxygen demand-supply disproportion; and miscellaneous as myocardial contusion, thrombocytosis, etc. Most infarctions are, of course, due to atherosclerosis and the thrust of this article is not to negate this proved fact—but to point out there are occasionally infarctions without atherosclerosis.

Another cardiologic trap is the electrocardiogram in head injuries. The relationship has been known for some time. In head injuries, if there is an abnormal electrocardiogram, is it due to coronary artery disease? The answer is maybe, not necessarily. Jachuck, Ramani, Clark and Kalbag (*British Medical Journal*, Volume 1, Page 242, February 1, 1975) have described their research on "Electrocardiographic Abnormalities Associated with Raised Intracranial Pressure". Their work demonstrated in seven human cases a relationship between central nervous system disorders and even raised intra-cranial pressure with altered electrocardiograms. Electrocardiograms were taken simultaneously with continuous intra-cranial

pressure monitoring. None of the patients had evidence of cardiovascular disease. They report that two patients with normal intra-cranial pressures showed no electrocardiographic abnormalities. The other five cases had a sinus rhythm and electrocardiographic changes relating to intra-cranial pressure changes. Four cases had rate changes, with increasing pressure, two up and two down. The T-waves were abnormal in five cases: flat, notched, or tall S-T Segments. S-T Segments depression related to pressure changes occurred in two patients; they were reversible. V waves were present when the pressure was high. Voltage was stable. P R Interval and Q R S intervals were normal. Q-T interval tended to decrease as pressure rose but after a certain point it prolonged. One note of caution is definitely indicated; the authors report myocardial damage with brain disorders as bleeding in 12% of cases—according to some work by other authors.

"Acute Myocardial Infarction In Toxic Cardiomyopathy Without Coronary Artery Obstruction" is an interesting study by Regan, Wu, Weisse, Moschos, Ahmed, Lyons and Haider (*Circulation*, Volume 51, Page 453, March, 1975). They studied 12 chronically alcoholic patients with acute chest pains suggestive of severe myocardial ischemia. Three patients died and autopsies were performed. The other nine patients underwent coronary arteriography using the Sones technique. Of three patients who expired, only one showed significant luminal narrowing; this was a 30% narrowing of the right coronary artery—in short, mild one vessel disease. These three patients had transmural myocardial infarctions proved pathologically. The other nine patients who had patent coronary arteries by arteriography had clinical findings including electrocardiographic changes compatible with a myocardial infarction; two of

the cases did have significant coronary artery disease without obstruction. The thrust of the article is that alcoholic cardiomyopathy can produce infarction in the absence of occlusive arteriosclerotic disease. Regan et al found no evidence to suspect thrombi as a cause of occlusion which might be missed—and yet produce an infarct. In the patients who expired, areas of periarterial fibrosis were found; they speculate this might limit the coronary artery blood flow in a time of need.

The foregoing indicates that alcohol in excess can produce myocardial infarction. The work of Delgado, Fortuin and Ross points out that there are acute effects on the heart of low doses of ingested alcohol. This was demonstrated by echocardiographic monitoring of left ventricular function (*Circulation*, Volume 51, Page 535, March, 1975). Ten volunteers were used; they were not regular users of alcohol. They were given the equivalent of two or three drinks meas-

uring two ounces per drink in 60 minutes or less. Blood alcohol studies were obtained and the subjects varied from about 60 mg. per 100 cc to 140 mg. per 100 cc. The echocardiographic interpretation indicated that there was a definite depression of myocardial contractility, following the use of alcohol. They feel that alcohol acts as a direct depressant on the myocardial cell's ability to contract. One interesting aside finding in this study was a lack of perfect relationship between the blood alcohol level and the degree of depression of the myocardium.

Perhaps, the most important factor demonstrated in these articles is that while subspecialty tools are a necessary adjunct to skillfully study a limited organ or system, a broad background of general medicine is necessary for the interpretation and assembling of facts to make a total unified diagnosis. Thus, the cardiac lesion may be just one part of the total disease pattern—the disease may not be primarily within the heart.



MEDICINE IN THE



THE MONTH IN WASHINGTON

Presidential candidate Jimmy Carter has abandoned his fence-straddling position on national health insurance and announced his support for a phased-in comprehensive program that sounds much like that proposed by labor leaders and Sen. Edward Kennedy (D-Mass.).

The former Georgia Governor, who has been accused by his political enemies of failing to take clear-cut stands on controversial national issues, came out four-square for a broad NHI at the annual convention of the Student National Medical Association here.

With Carter's announcement, most of the viable Democratic Presidential hopefuls are lined up behind federalized NHI, thus assuring that the Democratic Party plank on the issue will come out strongly for such a program.

Carter said he favored universal, mandatory coverage of comprehensive benefits financed through payroll taxes and general tax revenues. He called for strict controls and said NHI should first benefit "those who need it most . . . with the understanding that it will be a comprehensive program in the end."

The candidate also supported the controversial legislation sponsored by Sen. Herman Talmadge (D-Ga.) to "place controls on hospital costs and physician charges under Medicare and Medicaid." He seemed to endorse as well the medical manpower provisions backed by Sen. Kennedy. Declaring "the medical establishment has not responded to the shortage of primary care services and practitioners."

Carter said he supports "organized approaches to delivery of services", contending the American

health care system has become "a comprehensive catastrophe."

* * * *

The Federal Trade Commission has announced via press release that it is conducting an investigation to determine whether the American Medical Association may have "illegally restrained the supply of physicians and health care services."

The Commission said its probe will focus on:

- ★ accreditation of medical schools and graduate programs.
- ★ definition of fields of practice for physicians and allied health personnel by the AMA.
- ★ alleged limitations on forms of health care delivery "inconsistent with the fee-for-service approach."

It was the second major action against the AMA this year by the FTC which earlier had charged that the AMA's ethical ban on advertising by physicians violates the antitrust laws.

The FTC announcement came at a time when the Senate is about to consider controversial health manpower legislation giving the federal government power to control numbers and types of residencies in this country.

The FTC release stated that the investigation doesn't imply that violations of the law have occurred, but said the probe was part of a larger inquiry into the degree of competition in the delivery and financing of health care services.

AMA Chairman of the Board Raymond T. Holden, M.D., welcomed the airing of the issue as to whether the Association engaged in illegal restraints on the supply of physicians.

"Such a charge is hard to square with the facts," Dr. Holden said.

"The fact is there has been a tremendous growth in American medicine in the last ten years. The number of medical schools has grown by 30%, the number of physicians by 30% and the number of first year medical students by 69%.

"Ten years ago there was one doctor for every 682 Americans; today there is one M.D. for every 569 Americans.

"Latest figures from the World Health Organization show that there are more physicians per capita in the U.S. than in England, Canada, Sweden, France, or Holland.

"We have not violated the anti-trust laws. We have, as a matter of record, advocated increases in the numbers of physicians and health personnel.

We are frankly puzzled as to what precipitated the FTC investigation."

Dr. Holden added: "The FTC is spinning its wheels—it is nothing but sheer harassment—there are a bunch of nincompoops down in the government agencies who have to justify their existence."

* * * *

The Presidential and Congressional elections this November could determine the future course of the American medical system, speakers told the 1976 AMA-AMPAC Public Affairs Workshop.

Some 300 people attended the meeting in Washington, D. C., sponsored by the American Medical Political Action Committee and the AMA. The theme was "Century III: The Time for Medicine to Turn Out and Turn On."

Sen. Robert Packwood (R-Ore.) told the participants that political action by physicians is a "must" because Congress next year probably will take the first step toward writing a national health insurance measure. The manner in which the first step is administered and financed probably will set the pattern for the entire NHI package when it is finally developed, the Senator said.

Packwood said in his experience medical political action committees are "the most effective political organizations" he has encountered.

Raymond Holden, M.D., Chairman of the AMA Board of Trustees, stressed the importance of health legislation in affecting the quality of care. Dr. Holden said that in order to achieve good legislation, good Congressmen must be elected.

James MacLaggan, M.D., Chairman of the AMPAC Board of Directors, noted that membership in AMPAC has tripled during its 14 years, a period marked by massive public distrust of the political process.

* * * *

The health of American Indians and Alaska natives continues to lag some decades behind the rest of the population, the AMA has told Congress, declaring "the time is way overdue to provide proper health care for our first Americans."

Congress was urged to act swiftly on legislation aimed at upgrading health care for the Indians by Russell B. Roth, M.D., a past president of the AMA. Dr. Roth supported a measure approved by the Senate and the House Interior Committee and recommended some changes in testimony before the House Commerce Subcommittee on Health.

The work of the Indian Health Service was praised by Dr. Roth, but he said inadequate budgets have hampered the Service's efforts.

"To a large extent, the increases in the budget for Indian health over the years have been little more than 'cost-of-living' increases," he said. "They have enabled the service to maintain its health care system, but not to improve it. A few new facilities have been built, a few old ones modernized, but the majority can only be maintained—getting older and more outdated. The Service's manpower problems have been met with patchwork or 'band-aid' solutions—the military draft alternative, limited pay increases, and some financial grants-in-aid with service payback provisions."

The bill before the Subcommittee "if enacted, fully implemented and funded, would have an immense effect on the health resources and services available to Indians and on their educational opportunities, their environment and on their future health status," said the AMA witness.

The legislation provides scholarships for Indians who wish to train for the health professions, public health education, increased patient-care funding, new and expanded health care facilities with provisions for upgrading their quality, and a special study on the alcoholism and mental health problems of Indians.

* * * *

The government for the first time has agreed to reimburse hospitals for Medicare on the basis of rates set by a state regulatory commission. The Maryland Health Services Cost Review Commission, one of the most powerful such agencies in the Nation, won agreement from Medicare for the Commission's rates to be utilized rather than those set by Medicare.

The state agency's rates take into account bad debts and charity costs, but keep a tight lid and review on hospital charges. Hitherto, Medicare has not allowed bad debts and charity care to be figured as reimbursable cost items for hospitals.

A Medicare official said the government believes the Maryland Commission has a rate-setting approach that encourages hospitals to be cost-conscious. The new Medicare reimbursement will not take effect for a year. Medicaid officials were reported to be considering following suit.

* * * *

Tests of swine influenza vaccine are starting on humans in preparation for a Nationwide immuni-

zation campaign. First tests are slated for employees who volunteer at the Food and Drug Administration and the National Institutes of Health. Other human trials are set for the University of Rochester, Baylor College of Medicine, Ft. Ord, California, and Lawry Air Force Base, Ohio. Some 1,000 people are expected to be involved in the first phase of testing.

President Ford urged all Americans "to receive an inoculation against this form of influenza" in signing the legislation that speedily cleared Congress authorizing \$135 million for the immunization.

Signing the bill in the oval office, the President said a similar flu killed 500,000 Americans and some 20 million persons around the world at the end of World War I.

"We will mobilize all necessary national resources to make sure we reach our goal" of total U. S. inoculation, he said.

Two sponsors of the bill, Reps. Daniel Flood (D-Pa.) and Paul Rogers (D-Fla.) joined Health, Education and Welfare Secretary David Mathews at the signing ceremony.

Not resolved was the product liability issue. A spokesman for the Pharmaceutical Manufacturers Association said drug manufacturers are now working with the HEW Department to determine if the liability question can be handled through contracts between HEW and the individual firms.

A major purpose of the early trials is to measure human response to varying doses.

* * * *

Compromise utilization review regulations meeting many of the legal objections raised by the medical profession have been issued by the Health, Education and Welfare Department.

The original regulations had been blocked successfully in a landmark court case by the American Medical Association as a violation of the rights of physicians and patients by requiring same-day review of hospital admissions and review participation by non-professionals of Medicare and Medicaid patients.

As drafted by HEW after consultation with AMA representatives at the suggestion of the federal courts, the new UR Regs place responsibility for adverse review decisions squarely on the shoulders of physician peers and provide for consultation with the admitting physician. In addition, the time for reviewing Medicare-Medicaid admissions was extended to three working days.

HEW proposed a screening system for hospitals under which admissions would be sorted into categories and criteria established by physicians on the hospital staff. Laymen could take part in the initial screening process but would have to refer to physicians questionable cases for further review.

The AMA had stipulated in advance that it would not necessarily be bound by the terms of the new regulations and reversed the right to pursue further court action if it felt the step was warranted. The regulations published in the *Federal Register* state that HEW Secretary David Mathews believes they "largely meet the legitimate concerns of the (American Medical) Association."

The revised Regs still provide that review be completed before elective surgery unless the procedure falls into a category not requiring review such as danger to the patient or even "pain itself." The actual determination of which procedures are elective is left to the hospital staff.

At the time of initial review a date must be set by the staff. The review procedures for continued stay would be the same as for initial admission.

HEW said the new Regs should handle the problem of small and rural hospitals where it is difficult to have available a sufficient number of physicians for review. Further, the current proposals incorporate Medicaid allowances of variances in specific cases for institutions that cannot form a review committee within the time frame.

Said HEW in describing the new Regs:

"The medical profession must be relied upon, consistent with program purposes under Medicare and Medicaid, to design and carry out the utilization review functions, this means that physicians should, in large measure, determine which categories of cases should receive in-depth review as distinguished from those for which the prescribed treatment or medical procedure can be presumed necessary without such in-depth review. It also means that a determination of non-necessity should be made only by physicians, and then only after careful consultation with the admitting physician."

Interested groups have until the end of May to comment on the regulations before they become final.

* * * *

The American Medical Association has told Congress that drug labelling for patients with full information about possible dangers could scare many people off the drugs.

"The patient could, out of apprehension and unnecessary fear, and without adequate background to make a valid judgment, refuse to accept the drug for his condition," said Jere W. Annis, M.D., a member of the AMA Board of Trustees. Dr. Annis told the House Commerce Health Subcommittee "in the long run more patients would suffer from adverse effects of their condition for failing to follow a prescribed regimen as established by their physicians."

The measure before Congress would give the government the authority to include in the labelling the conditions for which the drug should be used. Physicians who have found the drug useful for non-labelled conditions would hesitate to prescribe it for fear of confusing their patients or feel forced to select a less effective product in their judgment, Dr. Annis said.

Dr. Annis said the AMA "has long recognized that certain specific information directed to the patient and appearing on the drug container label is invaluable." In certain circumstances, such as with oral contraceptives, expanded patient information is desirable, the Florida physician noted.

Dr. Annis also testified that no useful purpose would be served by creating the Food and Drug Administration as an independent agency with the Health, Education and Welfare Department, as another section of the bill provides.

* * * *

President Ford has asked Congress to pass a tough narcotics law to imprison hard drug dealers.

In a special message to Congress, Ford said some 5,000 young Americans die of drug abuse each year.

He said drug users commit about half the robberies, burglaries and other property crimes in America annually.

"It's a good message and hopefully it will produce some action," Ford told Attorney General Edward Levi and HEW Secretary David Mathews who witnessed the signing. The bill would allow federal judges to deny bail in some narcotics cases—including those where a defendant already has been convicted of trafficking in hard drugs, was free on parole, or was a non-resident alien.

In his message, Ford told Congress that he has endorsed Mexican President Luis Echeverria's proposals for establishing mechanisms for formal exchange of information and ideas at high levels of government to curb the illegal flow of drugs into the United States from South of the Border.

* * * *

The Food and Drug Administration has been defeated by Congress in its 14-year effort to put tighter controls on sales of extra-strong vitamin and mineral supplements. Under legislation approved and sent to the White House, the FDA specifically was prohibited from classifying as drugs those mineral and vitamin preparations that exceed the level of potency determined to be nutritionally rational or useful.

The "health foods" industry and the health foods advocates fought the FDA at every turn, mustering a vehement grass-roots movement against vitamin-mineral regulations that had an obvious impact on Congress. There was no adverse vote or voice raised against the unusual provision—part of a measure authorizing appropriations for the National Heart and Lung Institute.

* * * *

The starting date of the government's Maximum Allowable Cost (MAC) drug purchase program has been delayed until August 26, a four-months postponement.

Health, Education and Welfare Department officials said the delay was to permit states more time to prepare for the program. Two months ago, HEW Secretary F. David Mathews rejected a Pharmaceutical Manufacturers Association request to postpone the program.

Meanwhile, attorneys for the American Medical Association and HEW were preparing final briefs in the AMA's lawsuit against the MAC regulations.

U. S. District Court Judge Prentice H. Marshall is debating motions for summary judgment—requests to decide the issue without a trial—and last briefs are due April 26.

The AMA filed suit against HEW last summer to stop implementation of the MAC program. The AMA contends the regulations violate patients' right to seek the best medical care, and that HEW exceeded its statutory authority in issuing the regulations.

The MAC rules would require physicians to prescribe the lowest-cost generic form available of certain drugs for Medicare and Medicaid patients.

* * * *

Procedures for choosing statewide Professional Standards Review Organization (PSRO) areas in states where two or more areas have previously been specified but where there is not yet any designated PSRO have been set forth by HEW.

Under the proposal, HEW will poll all doctors of medicine and doctors of osteopathy practicing within the state. Should more than fifty percent of the doctors in each PSRO area who respond support a change to a single statewide area designation, the Department will establish the entire state as a single PSRO area.

The proposed regulations include the methods for giving notice of the poll, how the poll will be conducted and the votes tabulated, and the grounds and procedures for conducting a recount.

The HEW action came about as a result of the Medicare-Medicaid amendments law signed by President Ford early this year. The PSRO provision, sponsored by Sen. Lloyd Bentsen (D-TX), was urged by AMA. According to HEW, Texas, Louisiana and possibly some other states could be affected by the option for choosing a single, statewide PSRO.

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AMA PLAQUE ON FEE DISCUSSIONS

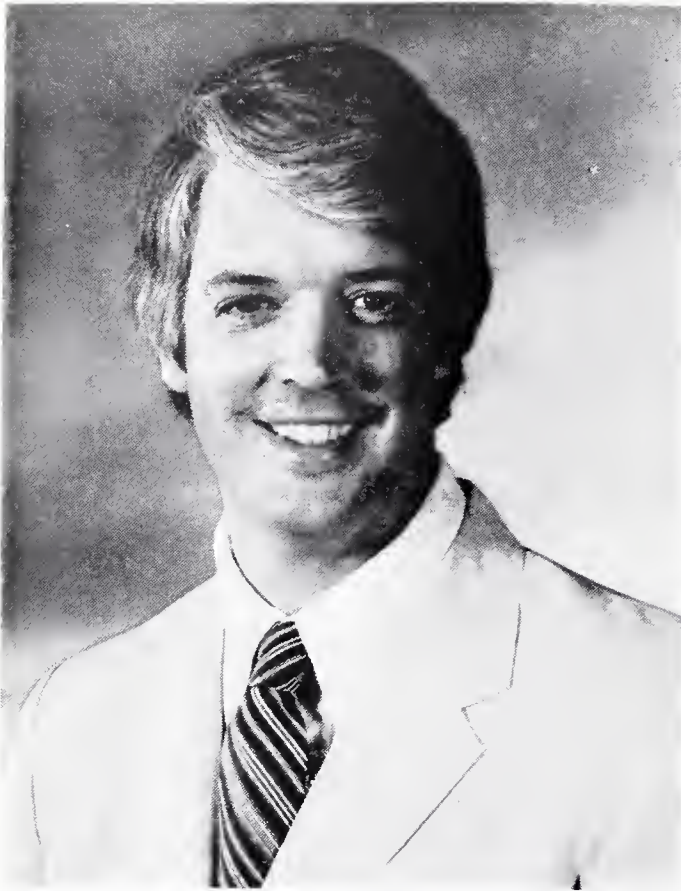
The cost of health care becomes a more important national issue with each monthly report of the Consumer Price Index. CPI reports, articles in the press and the soaring cost of professional liability insurance are among the factors that are making more and more patients uneasy about the cost of their care. Some physicians post basic charges on the wall of their reception room. Some physicians avoid the issue. One practical way to approach the fee question is to use a plaque available from the American Medical Association. The plaque is entitled "To All My Patients" and contains the following message: "I invite you to discuss frankly with me any questions regarding my services or my fees. The best medical service is based on a friendly, mutual understanding between doctor and patient." Individual plaques are available from the AMA Order Department, 535 North Dearborn Street, Chicago, Illinois 60610, at a cost of \$2.40 each. The order number is OP-33.

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NEW OFFICER OF THE MEDICAL SOCIETY

At the 1976 meeting of the Arkansas Medical Society, Dr. Mahlon O. Maris of Harrison was elected to the position of First Vice President. As first vice president, Dr. Maris is a voting member of the Council of the Arkansas Medical Society, the governing body which serves between meetings of the House of Delegates.

Dr. Maris grew up in Little Rock and attended



Mahlon O. Maris, M.D.
First Vice President
Arkansas Medical Society

Hendrix College, from which he was graduated with a Bachelor of Arts in Science degree, with a major in Biology. He received his Doctor of Medicine degree from the University of Arkansas Medical School in 1967. Dr. Maris interned at the United States Air Force Hospital, Keesler Air Force Base, Biloxi, Mississippi, and served one year in family practice clinics at Myrtle Beach Air Force Base Hospital in South Carolina. Dr. Maris was Commanding Officer

of the Military Provincial Hospital Assistance Team, Vinh Long, South Viet Nam; during that tour, he received the Vietnamese National Health Medal and two United States bronze star medals. He has been in family practice in Harrison since June of 1970.

Dr. Maris has served as president of the Boone County Medical Society, president of the Ninth Councilor District Medical Society, delegate from Boone County to the Arkansas Medical Society, and Second Vice President of the State Society.

Dr. Maris has served on the Board of Directors of the Arkansas Academy of Family Physicians since 1974 and has qualified for the Physicians Recognition Award of the American Medical Association by meeting requirements for continuing medical education. He is a Diplomate of the American Board of Family Practice.

Dr. Maris and his wife, Kay, have two children — Mahlon, Jr., 8 years old, and Beth, five years. His interests other than medicine include farming, canoeing, camping, and hunting.

* * * *

CORPS OF ENGINEERS BICENTENNIAL MAPS

The Little Rock District of the Corps of Engineers has advised the Medical Society of the availability of bicentennial maps. The maps are reproduced on simulated parchment in varying sizes and would be appropriate for framing and hanging in physicians' offices. A listing of the maps by number, with area identification and dimensions follows. If you are interested in obtaining copies of any of the maps, please write the Society office (Post Office Box 1208, Fort Smith, Arkansas 72902) indicating the number of the map desired.

<i>Map No.</i>	<i>Map</i>	<i>Survey</i>	<i>Dimensions</i>
1	Mississippi River	1805-1806 Captain Z. M. Pike	131½" x 30½"
2	Western North America	1818 Joseph Meigs	54" x 31½"
3	Rio Grande (to the Pacific Ocean)	1853-1854 Lieutenant A. W. Whipple	52½" x 25½"
4	Rocky Mountain (and to Oregon & North California)	1842-1844 Captain J. C. Fremont	53½" x 34"
5	Western Parts of Virginia, Pennsylvania, Maryland and North Carolina	1784-1785 Thomas Hutchins	44" x 37"

<i>Map No.</i>	<i>Map</i>	<i>Survey</i>	<i>Dimensions</i>
6	Upper Mississippi River	1836-1840 J. N. Nicollet and Lieutenant J. C. Fremont	29" x 36"
7	Oregon and Upper California	1842 Lieutenant J. C. Fremont	28½" x 35½"
8	Rocky Mountains to Puget Sound	1853-1854 Issac I. Stevens	39" x 28¼"
9	Vancouver Depot (to) Salt Lake Lake City (Utah Territory)	1858 Captain R. Ingolls	18½" x 23"
10	Mississippi and Tributaries	1861 Captain A. A. Humphrey and Lieutenant H. L. Abbott	21" x 20"
11	Oregon, West of the Rocky Mountains	1838 Colonel J. J. Abert	22" x 20"
12	Pacific Railroad	1855 Pacific Railroad Reports Surveys	24" x 22½"
13	Sabine Pass and Mouth of the River Sabine	1840 Lieutenant T. J. Lee and Captain P. J. Pillans	19½" x 27½"
14	Litchfield Community to the Highlands of Neversink	1779 Robert Erskine	14" x 20½"
15	A chart of the International Part of Louisiana	Captain Z. M. Pike	17½" x 20"
16	General Map (Survey of Southwest United States and Mexican Boundaries)	1850-1853 Major W. H. Emory	21" x 17½"
17	Mississippi River	1805-1806 Captain Z. M. Pike	31½" x 13½"
18	Western Portion of North America, from Mississippi to Pacific	1804-1806 Lewis and Clark	28-1/16" x 13½"
19	Territories West of 100° Longitude, Canada, North & South Dakota, Montana, Wyoming, and Utah	1876 Major G. L. Gillespie	22" x 30½"
20	Camp Floyd, Utah to Carson Valley, Nevada	1859 Captain J. H. Simpson	30½" x 18"
21	Sketch of the Mississippi River	1805-1806 Lieutenant Z. M. Pike	25" x 32½"
22	Map of the Straits of Detroit	1840-1845 Lieutenant J. N. MaComb and Lieutenant W. H. Warner	24" x 36"
23	Harbor of St. Louis, Mississippi River	1837 Lieutenant Robert E. Lee	40¼" x 18"
24	Rio Colorado of the West	1858 1st Lieutenant J. C. Ives	36" x 18"
25	Territories West of the Mississippi to the Pacific Ocean	1818 Major Issac Roberdeau	53¼" x 32"



PERSONAL AND NEWS ITEMS

SOCIETY ACCEPTS OPHTHALMOLOGIST

Dr. Frederick T. Fraunfelder, professor and chairman of the Department of Ophthalmology at the University of Arkansas College of Medicine, has been accepted as an associate member of the American Ophthalmological Society, a professional honor society. Dr. Fraunfelder is believed to be one of the Society's youngest members and he is the first Arkansas member.

DOCTOR IS HONORED

Dr. Charles H. Kennedy of North Little Rock recently received a plaque from the Northeast High School Chargers Booster Club in recognition of years of service as the team physician.

AWARD GOES TO DR. DODGE

Dr. Eva Dodge of Little Rock has received the Arkansas Public Health Association's "Dr. Tom T. Ross Award," the State's highest award for achievement in the field of public health. Dr. Dodge was a national pioneer in birth control and child health care. She was named professor emeritus when she retired from the faculty of

the University of Arkansas School of Medicine in 1964. She has served as a consultant to the State Health Department for the past several years.

PHYSICIANS OCCUPY NEW CLINIC

Drs. Joe Hughes, Sebastian Spades and Ted Lancaster have recently moved into a new clinic building on Highway 25 West in Walnut Ridge. Dr. Rob Lowery joined the group upon completion of his internship at Arkansas Baptist.

DOCTOR JOINS GROUP

Dr. Bob Fraser joined the Clarksville Medical Group in July. Dr. Fraser is a 1975 graduate of the Arkansas College of Medicine and he interned at Baptist Medical Center in Little Rock.

DINNER HONORS PHYSICIANS

Physicians from the Stuttgart Medical Clinic and Dr. B. F. Pupsta of Clarendon were honored at an appreciation dinner in June by Potlatch Mills.



THINGS TO COME



June 29 & 30, 1976

Mastectomy Training

A Reach-To-Recovery training session for mastectomy patients will be held July 29th and 30th at the American Cancer Society in Little Rock. If you have a patient(s) you would like to recommend, please write to Post Office Box 3822, Little Rock, Arkansas 72203, or call 501-664-3480.

August 5 & 6, 1976

The University of Texas Health Science Center at Houston and the University of Texas

System Cancer Center, M. D. Anderson Hospital and Tumor Institute, will present a "Urology Oncology Seminar" August 5 & 6, 1976, in Room 1113A of the Prudential Building, Texas Medical Center, Houston. The program is designed to cover in depth the diagnosis, staging and treatment of the various urological malignant diseases. Emphasis will be placed on treatment as it relates to the stage of disease and the necessity for a multidisciplinary approach. For further information, contact: The University of Texas Health Science Center at Houston, Post Office Box 20367, Houston, Texas 77025, telephone (713) 792-4671.

August 13-14, 1976

The 29th Annual Scientific Assembly of the Arkansas Chapter of the American Academy of Family Physicians will convene August 13-14, 1976, at the Fort Smith Municipal Auditorium,

Fort Smith. The meeting has been approved for 15 AAFP postgraduate continuing medical education study hours with additional hours available from the programmed learning courses.

The meeting will feature approximately thirty scientific exhibits.

Guest speakers will include Ronald Lee Nichols, M.D., Downey, Illinois; Denton Colley, M.D., Houston; Robert Leachman, M.D., Houston; Doyme Williams, M.D., Little Rock; G. Thomas Jansen, M.D., Little Rock; William F. Turner, M.D., Fort Smith; William P. Phillips, M.D., Fort Smith; and James W. Long, M.D., Fort Smith.

Coach Frank Broyles will be guest speaker for the Razorback Breakfast.

Carl B. Hall, M.D., President of the American Academy of Family Physicians, will be the guest of the Arkansas Academy at its assembly.

All physicians are invited to attend. For further information on courses, sessions, reservations and registration fee, please write the Arkansas Academy of Family Physicians, Post Office Box 5721, Little Rock, Arkansas 72205.

September 30 & October 1, 1976

The Arkansas and Oklahoma Divisions of the American Cancer Society will present "Current Concepts in Care of the Cancer Patient" at the Sheraton Inn in Fort Smith on September 30 and October 1, 1976. The program is aimed at providing practical information in the evaluation and treatment of various cancers. Tumors to include malignant melanoma, gynecologic cancer, childhood cancer and thyroid cancer will be stressed. The program was developed in cooperation with the Office of Continuing Education for Physicians of the University of Arkansas for Medical Sciences and is approved for 10 credit hours in category 1 for the Physicians Recognition Award of the American Medical Association. Application has been made for credit hours with the Academy of Family Physicians. Sessions are open to all members and students of the medical and nursing professions. For further information, contact the Arkansas Division at Post Office Box 3822, Little Rock, Arkansas 72201.

October 20, 1976

The third annual Physician's Opportunity Fair, sponsored jointly by the University of Ar-

kansas College of Medicine, the Arkansas Medical Society, and the Arkansas Caduceus Club, will be held on Wednesday, October 20, 1976, on the campus of the University of Arkansas for Medical Sciences in the Jeff Banks Student Union Building.

November 11-13, 1976

Yale School of Medicine will present a course on "The Hepatic Coma Syndroms: Advances in Pathogenesis and Treatment" at the Yale New Haven Medical Center, New Haven, on November 11-13, 1976. For further information, contact Harold O. Coon, M.D., Yale University School of Medicine, Department of Internal Medicine, 333 Cedar Street, New Haven, Connecticut 06510.



O B I T U A R Y

Dr. George C. Burton

Dr. George C. Burton was killed in an airplane crash on May 29, 1976, in Illinois. Dr. Burton, who had practiced Radiology in El Dorado for over twenty years, was en route to Iowa City, Iowa, where he was to have served on the faculty of the University of Iowa School of Medicine.

Dr. Burton was born in Bald Knob on November 28, 1914. He received B.S. and M.D. degrees from the University of Arkansas. His training in his specialty of Radiology was at the University of Iowa. He was a Diplomat of the American Board of Radiology and a Fellow in the American College of Radiology.

Dr. Burton had been active in medical affairs in the State. He served for many years as the district councilor of the Arkansas Medical Society. Dr. Burton also was active in the early years of the Arkansas Medical Political Action Committee.

Dr. Burton had many hobbies, including violin making, coin collecting, and aviation. He had constructed experimental airplanes.



NEW MEMBERS

Three new members have been added to the membership roll of the Society through the Craighead-Poinsett County Medical Society. They are:

DR. DONALD R. GUINN

Dr. Guinn is an Internist who practices at 505 East Matthews in Jonesboro. He is a graduate of the University of Tennessee Medical School, December 1971. His internship was at Kansas City General Hospital and Dr. Guinn then came to the University of Arkansas Medical Center for his residency in Internal Medicine. He began his practice in Jonesboro in January of 1976.

DR. LARRY H. JOHNSON

Dr. Johnson received his pre-medical education at the University of Arkansas and was graduated from the University of Arkansas School of Medicine in 1972. He completed a rotating internship at St. Vincent Infirmary in Little Rock and took a residency in Anesthesiology at the University of Arkansas Medical Center. He has been in practice in Jonesboro for one year. His office address is 818 Cobb Street.

DR. LADD J. SCRIBER

Dr. Scriber is a native Arkansan who attended the University of Arkansas, receiving his M.D. degree in 1970. He went to Fort Worth for an internship at the John Peter Smith Hospital. Dr. Scriber returned to the University of Arkansas Medical Center for a residency in Urology. Upon completion of the residency, he entered practice in Jonesboro. His practice is limited to Urology and his office address is 812 Cobb, Jonesboro.

★ ★ ★ ★

The Benton County Medical Society also added three new physicians to the membership

roll of the Society this Spring. New members in that area are:

DR. DALE H. DAVIES

Dr. Davies is a native of Nebraska and he received his pre-medical education in that state, as well as earning his M.D. degree from the University of Nebraska College of Medicine in 1939. Dr. Davies served his internship at the United States Marine Corps Hospital in Seattle and served on active military service from 1942 until 1946. He practiced in Idaho and Texas before entering training in Radiology at the University of Pennsylvania and the University of Iowa. Dr. Davies was Associate Professor of the Department of Radiology at the University of Nebraska from 1954 until 1956. He practiced in Fremont, Nebraska, from 1956 until coming to Arkansas in 1975. He is board certified in Radiology, a Fellow of the American College of Radiology and the Radiological Society of North America. Dr. Davies is practicing in Bella Vista.

DR. JAMES R. McNAIR

Dr. McNair attended the University of Arkansas, receiving the degree of Doctor of Medicine from the School of Medicine in 1968. He interned at San Francisco General Hospital and returned to the University of Arkansas Medical Center for a residency in Ophthalmology. Dr. McNair maintains his office for the specialty of Ophthalmology at 105 South 12th Street in Rogers.

DR. ROBERT H. ROBBINS

Dr. Robbins is a native of Connecticut. He received his pre-medical education at the University of Florida and at Emory University. He was graduated from the University of Tennessee College of Medicine in 1937 and served an internship at the Chicago Memorial Hospital. After five years of active military service, he entered practice in Waukegan, Illinois. After twenty-eight years of general practice in Waukegan, he came to Rogers for the general practice of medicine.

★ ★ ★ ★

New members of the Crittenden County Medical Society reported to the State Society in recent months are:

DR. LAWRENCE D. BERNSTEIN

A native of Pennsylvania, Dr. Bernstein received his medical education at Jefferson Medical School in that state. He interned at Case-

Western Reserve Affiliated Hospitals and took a residency in Internal Medicine at the University Hospitals of Cleveland. He was a Clinical Instructor at Case Western Reserve Medical School in 1974-75. In July 1975 he joined the Health Care Foundation at West Memphis. He is in the Public Health Service.

DR. J. MAHLON WILLIAMS

Dr. Williams attended the University of Arkansas and Hendrix College before entering the University of Arkansas School of Medicine. His M.D. degree was obtained in 1971. Dr. Williams interned at the University Hospital. His training in Pathology and Gerontology was at the University Hospital and John Gaston Hospital at the University of Tennessee. Dr. Williams' office is at 259 South Bellevue in Memphis.

DR. SAMUEL MORRIS YOUNG

Dr. Young is a 1972 graduate of the University of Tennessee College of Medicine. He served a rotating internship at St. Joseph Hospital and a straight pathology internship at Baptist Memorial Hospital in Memphis. Dr. Young has been in practice in Parkin since March 1975. He is a general practitioner.

★ ★ ★ ★

Two new physicians in Pulaski County have been recently added to the membership roll. They are:

DR. WILLIAM S. PICKENS

Dr. Pickens is a native of Little Rock who attended the University of Arkansas at Fayetteville and the University of Arkansas School of Medicine. His M.D. degree was obtained in 1966. Dr. Pickens interned at Tampa General Hospital. He took training in Radiology, Internal Medicine and Cardiology at the University of South Florida from 1970 until 1975. He is certified by the American Board of Internal Medicine. Dr. Pickens specializes in Cardiology; his office is located in the Doctors Building, Suite 316, Little Rock.

DR. WESLEY J. ASHABRAWNER

Dr. Ashabrawner is a courtesy member in Pulaski County. He is a medical student at the University of Arkansas School of Medicine, class of 1979.

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DR. ROBERT L. PARKMAN, JR.

Dr. Parkman attended Centenary College in Shreveport and Southwestern University for his pre-medical education. From 1946 until 1952 he was in active duty with the United States Navy. He was graduated from the Louisiana State University Medical School in 1957, and interned at Confederate Memorial Medical Center. He practiced in Texas and Louisiana between 1958 and 1972. In 1972, he entered training in Radiology at Charity Hospital in New Orleans and Touro Infirmary. He practices Radiology at the Warner Brown Hospital in El Dorado.

DR. JAMES E. YOUNG

Dr. Young is a 1972 graduate of the University of Arkansas College of Medicine. He interned at John Peter Smith Hospital in Fort Worth and served two years in military service at the Family Practice Clinic of the Pine Bluff Arsenal. Dr. Young has practiced for about a year at the McGehee Family Clinic in McGehee and is a member of the Desha County Medical Society.

DR. WILLIAM J. GARLAND, JR.

A native of Louisiana, Dr. Garland was graduated from the Louisiana State University School of Medicine in 1966. He interned at Confederate Memorial Hospital in Shreveport and trained in Internal Medicine at the same facility. Dr. Garland served two years in the United State Air Force and was stationed at Eglin Air Force Base. He practiced for one year at the Veterans Administration Hospital in Shreveport before locating in Harrison. Dr. Garland specializes in Internal Medicine. His office is at Bower and Pine in Harrison.

DR. SHAFQAT HUSSAIN

Dr. Hussain is a native of Pakistan and is a graduate of Khyber Medical College, Peshawar, Pakistan. He interned at McKeesport Hospital in Pennsylvania and completed a general surgery residency at Grasslands Hospital, Valhalla, New York. Dr. Hussain was an emergency room physician in New York before becoming affiliated with the Jefferson Comprehensive Care Center in Pine Bluff in January of 1976. He does general practice at the Center.

DR. JOHN B. BOND, JR.

Dr. Bond is a native Arkansan who was graduated from the State's medical school in 1971. He interned at the University Hospital and trained in Internal Medicine at the University Hospital. Dr. Bond has been associated with the Burton-Eisele Clinic in Hot Springs since August of 1975 as a specialist in Internal Medicine.

DR. EDWIN C. JONES

Dr. Jones attended the University of Arkansas at Fayetteville for his pre-medical education and received his M.D. degree from the Medical School at Little Rock in 1971. He took a Family Practice Residency at the University of Arkansas Medical Center, followed by a residency in Psychiatry. He is practicing Psychiatry at the Ozark Guidance Center in Springdale.



ANSWER—Electrocardiogram of the Month

A regular supraventricular tachycardia is present at a rate of 187/minute. Flutter waves at a rate 375/minute, distorting the ST segment and T wave can be seen in lead II, III and AVF. Digoxin therapy was unsuccessful in converting the rhythm, but one milligram of propranolol given intravenously resulted in conversion to a sinus rhythm. Atrial flutter occurring in patients with lung disease may be resistant to therapy since it may be secondary to hypoxemia or tumor involvement of the myocardium.



August, 1976

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Vol. 73 No. 3

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- Predominant psychoneurotic anxiety

- Associated depressive symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor

neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive dis-

orders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anti-convulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful

respond to one

According to her major symptoms, she is a psychoneurotic patient with severe anxiety. But according to the description she gives of her feelings, part of the problem may sound like depression. This is because her problem, although primarily one of excessive anxiety, is often accompanied by depressive symptomatology. Valium (diazepam) can provide relief for both—as the excessive anxiety is relieved, the depressive symptoms associated with it are also often relieved.

There are other advantages in using Valium for the management of psychoneurotic anxiety with secondary depressive symptoms: the psychotherapeutic effect of Valium is pronounced and rapid. This means that improvement is usually apparent

in the patient within a few days rather than in a week or two, although it may take longer in some patients. In addition, Valium (diazepam) is generally well tolerated; as with most CNS-acting agents, caution patients against hazardous occupations requiring complete mental alertness.

Also, because the psychoneurotic patient's symptoms are often intensified at bedtime, Valium can offer an additional benefit. An *h.s.* dose added to the *b.i.d.* or *t.i.d.* treatment regimen can relieve the excessive anxiety and associated depressive symptoms and thus encourage a more restful night's sleep.



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(diazepam) [Ⓢ]

2-mg, 5-mg, 10-mg scored tablets

in psychoneurotic
anxiety states
with associated
depressive symptoms

surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of child-bearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies.

Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle

spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579 to be sent to Arkansas Medical Society, P. O. Box 1208, Fort Smith, Arkansas 72901. Published monthly under direction of the Council, Arkansas Medical Society, Volume 73, No. 3. Subscription \$2.00 a year. Single copies 50 cents. Entered as second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

Effect of Aluminum Hydroxide on Iron Absorption

S. P. Rastogi, M.D., M.R.C.P.** Fernando Padilla, M.D.*** Charles M. Boyd, M.D.****

The pathogenesis of anemia of chronic renal failure is multifactorial. Depressed erythropoiesis due to impaired production of erythropoietin by the diseased kidney is the major factor in the causation of anemia in these patients. Other less important factors include toxic suppression of the bone marrow in advanced degrees of uremia, since slight improvement in hematocrit and ferrokinetics often occurs after a period of adequate dialysis. Shortening of red cell survival in uremia has been demonstrated in a number of studies. Several metabolic abnormalities in the erythrocytes of uremic patients, e. g., glycolysis, glutathione metabolism, pentose shunt pathway and Na/K flux abnormalities have been described. Furthermore, in cross transfusion experiments, erythrocytes of a uremic donor show improved survival in a normal recipient, whereas erythrocytes from normal donors have a shortened survival when injected into uremic recipients. These observations suggest that uremic toxin or toxins impair cellular metabolism and decrease red cell survival. In the hemodialysis patients mechanical trauma to red cells may add to the azotemic red cell injury. Recirculation of blood on the artificial membranes and tubing two to three times per week for 5-7 hours, use of the blood pump, and rapid changes in blood osmolality, pH and temperature may traumatize the red cells as they traverse repeatedly in the extracorporeal circulation, and they may become susceptible to hemolysis in circulation.

Insufficient intake of hematinics due to severely restricted diet in uremia may contribute to the anemia in some patients. Folic acid is lost during dialysis since it is a water soluble vitamin. In clinical practice, however, anemia due to these factors is uncommon since the loss of folic acid

in dialysis is easily replaced by oral supplement of the vitamin and restricted diets in the management of uremia are seldom prescribed nowadays.

Significantly increased iron loss has been described in hemodialysis patients and if not corrected iron deficiency anemia ensues. This iron loss can easily be explained by increased blood loss sustained during regular hemodialysis, as indicated in Table I. The magnitude of blood loss in laboratory tests and in the dialysis equipment is not fully appreciated. Routine hematology and biochemistry tests pre and post-dialysis are performed for checking adequacy of dialysis, faithfulness of these patients in their adherence to diet, and satisfactory control of hyperphosphatemia. Since the majority of these patients are also renal transplant candidates, serum is collected for detection of cytotoxic antibodies. Blood loss from these tests may amount to 25 ml if the tests are performed once each month. Routine clotting tests are usually performed during dialysis for checking adequacy of heparinization. If only one clotting test is performed during each dialysis and if the dialysis is carried out twice a week (9 per month), 18 ml of blood per month is lost, since 2 ml of blood is needed for each test. At the end of each dialysis, approximately 10 ml of blood may be left in the dialyzer and the tubing. Thus monthly blood loss in the dialyzer amounts to 10×9 , or 90 ml. Additional loss of blood may occur from occasional leak or rupture of dialyzers, and may also occur from the gastrointestinal or genitourinary tract of some patients with ulcers, functional platelet abnormality, or hormonal imbalance. A conservative estimate of blood loss each month amounts to approximately 130 ml. This would contain 26 mg of elemental iron if the average hematocrit in these patients is 20 volume per cent, since one milliliter of packed cells contains 1 mg of elemental iron. Proportionately greater loss of iron will occur in those patients with higher hematocrits. If dialysis is carried out 3 times per week the loss of blood and iron will be significantly greater.

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TABLE I
Estimate of Monthly Loss of Blood
in Dialysis Patients
(Dialysis x 2 per week)

1. Routine hematology, biochemistry and cytotoxic antibody screening	25 ml
2. Routine clotting tests during dialysis (2 x 9)	18 ml
3. Residual blood in the dialyzer and tubing (10 x 9)	90 ml
4. G. I. or genitourinary blood loss	?
5. Leak or rupture of dialyzer	?

	+133 ml

Absorption of oral iron in patients with chronic renal failure has been described as decreased or as normal, in various studies. We and several other investigators have observed that a significant rise in hematocrit does not occur following oral iron administration in these patients, yet a definite although modest increase (5-7 volume per cent) in hematocrit is commonly seen following intravenous iron. This suggested to us that an inadequate amount of oral iron is absorbed by these patients. We speculated that aluminum hydroxide, which is required for the control of hyperphosphatemia and which has the well known effect of decreasing phosphate absorption from the gastrointestinal tract, may also be impairing iron absorption.

For investigating the effect of aluminum hydroxide on iron absorption we studied four healthy volunteers, two patients who had hemochromatosis and in whom iron absorption was measured at a time when they were iron depleted, and one patient who had chronic renal failure. Iron absorption was measured twice in each subject. Baseline studies were performed before receiving any aluminum hydroxide (Amphogel), and the second study was performed several weeks later when the subjects were ingesting aluminum hydroxide. Amphogel (30 ml q.i.d.) was started 2 days prior to the test dose of iron and continued during the iron absorption measurement period. For the measurement of iron absorption, radioactive iron ^{59}Fe was utilized and a total body counting technique was employed. Ten microcuries of ^{59}Fe was given orally in the fasting state. Whole body counts were made prior to the test dose of iron and at intervals of 4 hours, 24 hours, and 10 days. Per cent of ^{59}Fe retained in the body represented the absorbed fraction. Table II gives the results of iron retention pre and dur-

ing aluminum hydroxide therapy in seven subjects. In each instance iron retention decreased markedly during aluminum hydroxide administration as compared to the baseline value and is statistically significant ($p < 0.0005$). Furthermore, retention of iron in two patients with hemochromatosis during aluminum hydroxide therapy decreased approximately to the same level as in normal subjects. One patient (T.N.) who had chronic renal failure had the lowest baseline iron retention and decreased further to one per cent during therapy; this was the lowest value of the group.

TABLE II
EFFECT OF ALUMINUM HYDROXIDE
ON IRON ABSORPTION

		Per Cent Iron Retention on 10th Day	
Subjects	Sex	Pre Al (OH) ₃	During Al (OH) ₃
* B.S.	F	53.7	29.0
* C.C.	M	63.5	13.0
* E.H.	F	56.0	19.0
* S.R.	M	43.0	11.0
** J.S.	M	81.6	18.7
** P.C.	M	58.6	10.0
‡ T.N.	M	31.7	1.0
		‡‡55.4	§§15.96
		± 5.94	± 3.31

* Healthy subjects
 ** Hemochromatosis
 ‡ Chronic Renal Failure
 ‡‡ Mean ± SEM

The mechanism by which aluminum hydroxide impairs iron absorption is not known. In this study aluminum hydroxide was started two days prior to the test dose of ^{59}Fe , given simultaneously with ^{59}Fe , and continued during the course of total body counting. It is possible that ^{59}Fe was converted into ferric hydroxide which is known to be poorly absorbed from the gastrointestinal tract. Secondly, aluminum hydroxide is expected to decrease the gastric acidity and thus absorption of iron since absorption of iron is affected by the pH of the intestine. Furthermore, aluminum hydroxide will lead to high phosphate concentration in the ileum which is known to impair iron absorption.

In summary, the anemia of chronic renal failure has many causes, but iron deficiency anemia may develop in these patients due to excessive blood loss and may be further aggravated by aluminum hydroxide induced decreased iron absorption. Therefore, iron deficient patients who also require aluminum hydroxide should be given iron parenterally. Aluminum hydroxide may prove to be an effective means of suppressing iron absorption in patients with hemochromatosis.

Gold Therapy for Rheumatoid Arthritis

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For the minority of patients with rheumatoid arthritis who do not respond to aspirin and the anti-inflammatory drugs, gold therapy is an effective alternate. It has been used in rheumatoid arthritis since 1929 and was used for years before that for the treatment of tuberculosis. The use of gold declined in the 1950's, but began increasing in the '60s after the Empire Rheumatism Council's double blind study proved conclusively that it did have a beneficial effect on rheumatoid arthritis. An even greater increase in the '70s is primarily due to the development of techniques to measure gold in tissue fluids and in serum and thus give some semblance of scientific control in gold therapy.

Table 1: PHARMACOLOGY OF GOLD SALTS

1. IM salts rapidly absorbed; plasma levels peak within a few hours but plateau to a mean level of 330 mg% 7 days after injection.
2. 15% of injected dose excreted via kidneys during first week.
3. Gold deposited in many tissues; highest in kidney, liver, spleen, lymph nodes.
4. Inflamed tissues take up more gold than normal.
5. Gold salts are taken up and concentrated within lysosomes, well demonstrated in synovial cells.
6. Lysosomal enzymes harvested from gold-laden lysosomes have profoundly depressed activity.
7. Gold salts in solution inhibit free lysosomal enzymes.

The pharmacology of gold salts is shown in Table 1. Given intramuscularly, it reaches an initial level of 700 to 800 mg%, but then declines so that one week after an injection the level is around 300 mg%. Gold is usually given in weekly injections. The amount of gold excreted varies significantly between patients, as demonstrated by measurement of gold levels in the urine and feces. From 15 to 30-50% of an injected dose may be excreted from the body within a week. Conversely, traces of gold may remain in the tissues, but primarily in the reticuloendothelial system, for months or even years. The inflamed tissues take up much more gold than do normal tissues.

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Also, gold seems to be taken up selectively by the synovial cells and is concentrated within the lysosomes. Since the lysosomal enzymes contribute greatly to the inflammatory reaction and to the cartilage damage, the fact that gold concentrates within these and reduces the activity of the lysosomal enzymes may well be part of its mechanism of action.

Table 2: INDICATIONS FOR GOLD THERAPY

- Failure to control disease on usual anti-inflammatory agents
- Presence of active disease
- Absence of severe joint destruction
- Rapidly advancing bony changes

The indications for the use of gold are shown in Table 2. Gold is not the initial therapy of choice because it does have significant toxicity; this must not be minimized. If the patient cannot be controlled on the usual anti-inflammatory drugs (aspirin and then the addition of other newer anti-inflammatory drugs), then gold should be considered. The disease should be in an active inflammatory state, and there should preferably be no joint destruction. Perhaps some patients who have rapidly advancing destructive bone disease should be considered early for gold therapy even before the other anti-inflammatory drugs have been thoroughly tried. This is because it has been suggested that gold alone of all the forms of therapy may actually slow or halt the destructive pannus formation that occurs in some patients with severe rheumatoid arthritis.

Table 3:

CONTRAINDICATIONS TO GOLD THERAPY

- Pregnancy
- Severe Renal Disease
- Hypoplastic Bone Marrow
- Hepatitis
- S.L.E.

The contraindications to gold therapy are shown in Table 3. Pregnancy is an absolute contraindication because of possible effects on the fetus. Severe renal disease is a contraindication; perhaps minimal membranous glomerulonephritis with normal renal function and proteinuria is not necessarily an absolute contraindication. When such patients are treated very cautiously with close observation of proteinuria, we have

seen no deleterious effects on the renal function. Certainly if the patient has a hypoplastic bone marrow, we would not treat them. However, there have been patients with Felty's syndrome and peripheral leukopenia in whom the white count has actually risen to normal range with gold therapy, so that leukopenia per se is not an absolute contraindication. Hepatitis probably is a contraindication. It has been said that patients with systemic lupus erythematosus have very poor results with treatment.

Table 4: TOXICITY OF GOLD SALTS

1. Dermatitis
 - a. Pruritic
 - b. Wide range of patterns
2. Stomatitis
 - a. Metallic taste
3. Nephrotoxicity
 - a. Mild proteinuria — common
 - b. Nephrotic Syndrome — rare
4. Bone Marrow
 - a. Thrombocytopenia
 - b. Agranulocytosis
 - c. Aplastic Anemia
5. Others

As shown in Table 4, gold does have significant toxicity. Dermatological toxicity is prominent. The patient may develop a pruritic skin rash, pruritis often occurring before the rash. The skin rash may have a wide range of patterns and may be eczematous or exfoliative. Many patients will have minor skin problems during gold therapy which are not progressive and do not necessarily indicate stopping the therapy. They may get a stomatitis that can be very severe, and many complain of metallic taste in the mouth. Again, this is not necessarily a contraindication to continuation of therapy, but certainly they should be watched carefully.

Nephrotoxicity does occur; proteinuria may be seen along with microscopic hematuria. Rarely this may progress to a nephrotic syndrome. Certainly progressive proteinuria is an indication for stopping therapy, as is progressive or increasing hematuria.

The bone marrow toxicity which occurs is well known. The thrombocytopenia in most cases that have been described does not appear to be actual bone marrow suppression; the marrow reveals a normal number of megakaryocytes. This seems to be a peripheral type of destruction of the platelets, and usually responds to steroid therapy. Leuko-

penia and agranulocytosis rarely occur, as does aplastic anemia.

There have been reported cases of gold hepatitis; some investigators feel these did not represent gold toxicity per se, but merely the coexistence of viral hepatitis in patients on gold therapy. Nevertheless, some attention should be paid to liver function tests during gold therapy.

Our experience with gold therapy is shown in Tables 5 and 6. We have over 20 patients on gold therapy; 13 are currently receiving gold, and we have discontinued treatment in 7 patients for various reasons. Of these 20 patients, 19 have responded to gold; only one patient did not respond. The literature gives figures ranging from 60 to 85 percent of the patients who usually will respond to gold with significant reduction in their inflammatory response. Many of our patients will report that they feel better within a week or two. I suspect that this is a placebo response; rheumatoid arthritis is notorious for the placebo response to many modes of therapy.

Table 5: 12 RESPONDERS TO GOLD

	<i>Mean</i>	<i>Range</i>
No. of Weeks to Obtain 10 mm Fall in ESR	13.6	4-29
Pre-Gold ESR	43	30-56
Latest ESR	17	2-31
Clinical Response (0-4+)	2.7	2-4 +
Gold Dosage	3982 mg	810-6480

Clinical findings on 12 of our 19 patients who responded to gold are shown in Table 5. A fall in the sedimentation rate regularly occurs. I took arbitrarily the number of weeks necessary to get a 10 mm fall in the Wintrobe sedimentation rate. This ranged in these patients from a minimum of four weeks to a maximum of 29 weeks with the mean being 14 weeks. The sed rate in many cases fell from a very high level to a completely normal range, so that from the sedimentation standpoint these people were normal.

The clinical response on a 0 to 4+ scale averaged 2.7 — not sensational, but certainly quite respectable. The patients in this group have received from less than a gram to 6½ grams of gold. I believe it is currently felt that there is no upper limit to the amount given; we continue gold therapy as long as the patient does well. Of the patients that we have taken off gold (Table 6), only one was due to failure to respond. Two patients relapsed after a response. One of these, the first patient I treated, relapsed because I did

Table 6: PATIENTS TAKEN OFF GOLD

Failure to respond	1
Relapse after response	2
Gold toxicity	4
Skin	2
Renal	1
Thrombocytopenia	1

not give him enough gold. We have had one patient who relapsed, in spite of what I felt to be an adequate course of gold and adequate maintenance.

Four patients of our 20 had gold toxicity. (The world-wide average for toxicity is probably from 25 to 35% of the patients who take gold, so it is not insignificant). Two of these developed spreading skin rashes. One developed proteinuria, and one had thrombocytopenia.

Table 7: GOLD ADMINISTRATION

1. Initial lab work — test dose of 5 mg gold.
2. 50 mg weekly thereafter — lab work prior to each injection.
3. After approx. 500 mg gold given, get serum gold level. If not > 300 mg%, increase weekly amount.
4. After 1000 mg gold, if remission, continue maintenance therapy — if no response, stop.
5. Maintenance therapy: 75 mg every 2 weeks to 125 mg every 3 weeks.

Table 7 outlines the administration of gold. We get a battery of laboratory work; a hemological examination including a white count, and a sed rate, a urinalysis, and a liver battery. We give a test dose of 5 mg, although I have never seen any adverse responses. It is said that you can get changes with only 5 mg, and there has been one report in the world's literature of thrombocytopenia after an initial dose of 5 mg. Assuming the repeat laboratory work one week later is satisfactory, we start giving 50 mg a week, with laboratory tests being repeated prior to each injection. The patient is also checked for any skin rash or mucous membrane lesions. It has been suggested that if a minimum serum gold level, just prior to the next injection, of around 300 mg% is maintained the patients probably re-

spond better. We feel that we should aim for this, within the first gram of gold therapy. It has been our practice to measure the serum gold level no later than halfway through the initial gram of therapy or at some point between 250 and 500 mg. If it is at 300 mg% and the patient seems to be responding, we continue. If it is below 300 mg%, we increase the dose from 50 mg a week to 60 or 75 mg, whatever is necessary to bring the serum level to 300 mg%.

In the past, we discontinued gold after a gram had been given. When this was done the patient's remission lasted from a few weeks to occasionally a few years, but the patients invariably relapsed. I think that everyone recognizes now that gold must be given in some form of maintenance therapy. The problem is that the minimum amount of maintenance is not precisely known at this point. Some people would continue to give gold every week. Some investigators feel that weekly gold should be continued indefinitely, and the dose should then be reduced to keep the serum gold level constantly at 300 mg%. With long-term therapy, this dosage may be reduced from 50 to as little as 25 mg a week. Because many of our patients travel a considerable distance and we try to minimize this, our practice has been, after they have improved and have had one gram of gold, to then switch to injections every two weeks and to increase the dosage to a minimum of 75 mg and occasionally as much as 100 to 125 mg; this is continued indefinitely. We have switched a few patients to every three weeks, giving from 100 to 125 mg every three weeks, and several are doing very well on that regimen. Some people advocate giving gold only once a month. I have had one patient who relapsed when I did this, and, therefore, have some hesitancy to stretch the injections that far.

In conclusion, gold is an excellent form of therapy. It does have toxicity and must be carefully monitored, but properly used in the minority of patients for whom it is indicated, it can give further improvement in probably 75% of the patients treated.



Recent Advances in Evaluation of the Jaundiced Patient

William D. McKnight, M.D.*

Physicians are familiar with the dilemma of trying to clinically distinguish patients whose jaundice is due to impairment of excretion of bilirubin by the liver itself versus patients whose jaundice is due to extrahepatic biliary obstruction. For practical purposes, jaundice due to hepatocellular disease can seldom be differentiated from that due to extrahepatic biliary obstruction solely on the basis of changes in bile pigment metabolism. Too often intrahepatic or "medical jaundice" and extrahepatic or "surgical jaundice" cannot be distinguished by any clinical or biochemical criteria. So in a given patient the physician is often faced with either adopting a "watch and wait" policy which may go on for weeks of prolonged hospitalization and increasing medical costs, or he may ultimately perform a liver biopsy or perhaps more practically recommend laparotomy to try to reach a definitive diagnosis. Attempts to visualize the gallbladder and biliary tree using oral cholangiography will fail in the presence of jaundice, and failure of the IV cholangiogram to visualize the biliary system is predictable in patients whose bilirubin is greater than 3.5 mg%. Because of unacceptable morbidity and mortality, preoperative attempts to obtain direct cholangiograms have not gained popularity.

Two new diagnostic techniques are now available to help the physician evaluate the jaundiced patient; both allow the physician to obtain direct cholangiograms preoperatively with minimal risk to the patient. The diagnostic techniques are endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic cholangiography (PTC). By obtaining a direct cholangiogram with either of these methods a more accurate determination of medical versus surgical jaundice can be achieved. If an extrahepatic biliary tract lesion is present, the site of the lesion can accurately be determined. By employing these tests early in the diagnostic evaluation of the jaundiced patient, prolonged hospitalization can be avoided. These tests are indicated in patients whose cause of jaundice is unclear and in patients who have failure of visualization with an oral or IV cholangiogram. Patients who are not candi-

dates for surgery are not candidates for these diagnostic tests.

Endoscopic retrograde cholangiopancreatography is obviously an endoscopic procedure. It is performed by passing a side viewing flexible fiberoptic endoscope orally, then through the esophagus, stomach, duodenal bulb, and the second portion of the duodenum. In the second portion of the duodenum the ampulla of vater is identified, and by passing a catheter through the endoscope the papillary orifice is intubated and a cholangiogram is obtained in a retrograde manner. In addition to obtaining a cholangiogram the physician has actual visualization of the ampulla of vater and therefore any abnormal mucosal changes can be evaluated by brush cytology, biopsy, and photography. Using the technique of ERCP a pancreatogram may be obtained; therefore this technique has application to pancreatic disease as well as to the jaundiced patient.

ERCP is a most difficult endoscopic procedure to master and expensive endoscopic equipment is required. The procedure is performed under fluoroscopy with image intensification. Prior to performing ERCP a barium swallow of the esophagus is necessary to define any esophageal lesions, as the side viewing endoscope is passed through the esophagus blindly. Since July 1975, 30 ERCP procedures have been performed at the University of Arkansas-VA Hospital by the Gastroenterology Service. Successful cannulation and x-ray visualization of the extrahepatic biliary tree has been achieved in 75% of these cases, with no morbidity and mortality. The reported complications of ERCP from Chiba University in Japan found an overall morbidity of 0.9% and no mortality in 665 cases. The chief complications were fever, cholecystitis, and cholangitis. This group was able to avoid the complication of cholangitis by operating on patients who had demonstrated extrahepatic biliary tract obstruction within 48 hours after the study. If extrahepatic biliary obstruction is not found, of course surgery is not necessary.

Percutaneous transhepatic cholangiography (PTC) dates back to as early as 1937, but because of the high morbidity and mortality associated with its use, it has not been frequently employed

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as a diagnostic procedure in the jaundiced patient. In the past the mortality following PTC was 2.4% and the complications of bile leakage, peritonitis, or bleeding were 7.7%. With the introduction of the Chiba needle from Japan these figures have been drastically improved. Commonly referred to as the "skinny needle", this needle is 0.7 mm in diameter, 15 cm long, and very importantly is flexible. The procedure is performed by passing the needle through the right lateral chest at about the eighth intercostal space, advancing the needle into the liver, and injecting contrast material as the needle is slowly withdrawn until a cholangiogram is obtained. The patient is allowed to breathe during the procedure, and because of needle flexibility problems of laceration of the liver are avoided. In the presence of biliary ductal obstruction there is virtually a 100% success rate in visualization of the biliary tree with PTC. It offers the advantage of a well visualized intrahepatic biliary system as well as extrahepatic biliary tree. The physician also has the opportunity to obtain bile samples for culture and cytology as well as the possibility of external biliary drainage. The procedure is not as difficult a technique to master as ERCP and expensive endoscopy equipment is not required. PTC, like ERCP, is performed under fluoroscopy using image intensification. Since July 1975, 5 PTC studies have been performed by our Gastroenterology Department with 100% success rate in visualization of the extrahepatic biliary tree in the presence of biliary tract obstruction, and there have been no complications. In a report from Chiba University of 1,000 cases of PTC, the morbidity was 1% and no mortality was observed. Again, if extrahepatic biliary tract obstruction is demonstrated by PTC, the patient should have surgery within 48 hours of the study; no surgery is indicated if ductal obstruction is not demonstrated.

The usefulness of obtaining a preoperative cholangiogram utilizing these new techniques was reported by the Minneapolis VAH. Two hundred patients had ERCP performed because of jaundice. One hundred and forty-two patients clinically had extrahepatic obstruction, i.e., an elevated bilirubin (mostly the direct fraction), an elevated alkaline phosphatase, and either a normal or only modestly elevated SGOT. Of these 142 patients with clinical obstructive jaundice, only 104 were found to have biliary tract ob-

struction and more importantly 20 patients or roughly 20% of the ones visualized had normal extrahepatic biliary trees. These patients did not have extrahepatic obstruction but rather "medical jaundice" and did not require surgery. Therefore, the clinical assessment of surgical jaundice was incorrect in 20% of the cases. In this series 68 patients were felt to have primary liver disease as a cause of their jaundice, i.e., an elevation of the serum bilirubin with about 50% direct and 50% indirect, elevated SGOT, and no elevation of alkaline phosphatase. In this group of 68 patients with classic "medical jaundice" the common bile duct was found to be obstructed in 14, so that 20% of the patients who clinically appeared to have intrahepatic or medical jaundice had extrahepatic biliary obstruction and required surgery. Therefore by utilizing these new techniques the physician can more accurately separate medical and surgical jaundice. If extrahepatic biliary obstruction is present, accurate definition of the anatomic location of the lesion is possible preoperatively. So in the jaundice patient a more aggressive approach can be developed utilizing ERCP and PTC. It should be emphasized that in employing these procedures a team approach is required. The decision to utilize these procedures should be a joint decision between the primary physician, the physician performing the procedure, and the surgeon designated to perform any indicated surgical procedure. If the decision is made to employ these techniques then the radiologist also becomes an important member of the team who must obtain and accurately interpret the cholangiogram.

The question arises as to which procedure should be selected as the procedure of choice in the patient with jaundice — ERCP or PTC? The answer in a gastroenterology referral center is a simple one. Both procedures should be available because they are complementary procedures rather than competitive ones. The initial procedure of choice would depend on operator experience and preference. Occasionally because of specific indications one technique may have an advantage over the other, and occasionally both techniques may be employed in the same patient's diagnostic workup. Because PTC is an easier technique to master, less expensive equipment is required, and virtually 100% success can be expected if extrahepatic biliary obstruction is present it will probably develop as the procedure of choice that can be offered in communi-

ty hospitals where ERCP is not available. In terms of cost effectiveness, a recent report calculated that a savings of \$1,000 per patient hospitalization resulted from early utilization of these new diagnostic techniques.

In summary, two new diagnostic techniques allowing direct cholangiography are now available

with acceptable low complication rates to be utilized in the jaundiced patient. By utilizing these new techniques more accurate definition of the cause of jaundice can be obtained. This results in appropriate therapeutic planning and avoids needless prolongation of hospitalization resulting in lowered hospital costs to the patient.



The New Aminoglycoside Antibiotics

Branch T. Fields, Jr., M.D.*

The purpose of this report is to present recent developments regarding the aminoglycoside antibiotics — that is, the antibiotics related to streptomycin. Examples of these are kanamycin, gentamicin, paromomycin, neomycin, amikacin, and tobramycin. The newest of these, tobramycin, will be discussed in depth because it is now FDA approved and available; some attention will be given to amikacin (BB-K8), which is still experimental.

Mechanism of Action

The mechanism of action of most aminoglycoside antibiotics is probably similar to that of streptomycin; these drugs inhibit protein synthesis at the 30-S ribosomal subunit within the cytoplasm. Electron microscopy has revealed within the cytoplasm of the cell a network of tubules known as the endoplasmic reticulum. Around these tubules are tiny dots that can be seen on electron microscopy; these are called ribosomes (Figure 1). Ribosomes are the site of protein synthesis in cells. Bacterial cells can be ground with a mortar and pestle and the cell cytoplasm spun in an ultracentrifuge, so that the cell ultra-structures (organelles) layer out along the centrifuge tube at various levels, depending upon their molecular weights. These levels or molecular weights are designated by the term Svedberg coefficient; for example "19 Svedberg" or 19-S corresponds with a higher molecular weight than 7-S. Bacterial ribosomes are 70-S by ultracentrifugation. They can be separated into a 30-S subunit and a 50-S subunit. Streptomycin,

and presumably the other aminoglycoside antibiotics, inhibit protein synthesis mainly at the 30-S ribosomal subunit level. This mechanism is not completely understood; however, some facts are known. Streptomycin does bind irreversibly to the ribosome. Also, in synthetic systems streptomycin inhibits peptide synthesis and partly inhibits transfer RNA binding to the ribosome-messenger RNA complex. In addition, it causes misreading (decreased accuracy of recognition) of the genetic code. Thus, streptomycin both inhibits protein synthesis and causes synthesis of abnormal proteins; however, this resulting production of abnormal protein does not explain the killing action of the drug. The key to the lethal action of streptomycin was provided by shifting the investigations from synthetic to natural systems. The results showed that streptomycin permits formation of the "initiation complex" between the anticodon of transfer RNA and the codon of a messenger RNA (Figure 2), but then blocks its further activity. Moreover, the streptomycin-blocked complex is unstable; the transfer RNA is prematurely released and the ribosomes drop off the messenger RNA. Streptomycin is thus seen to cause a cyclic blockade of ribosomal activity with repeated reinitiation, inhibition of activity, and release. Presumably tobramycin and other aminoglycosides act in much the same way and thus are basically bactericidal antibiotics.

Pharmacology and Toxicity of Tobramycin

Tobramycin was discovered about 1967 as an extract from *Streptomyces tenebrarius*, from which the brand name Nebcin® (Lilly) was taken. This drug is similar in almost every respect to the more familiar antibiotic gentamicin (Garamycin® (Schering)). With regard to

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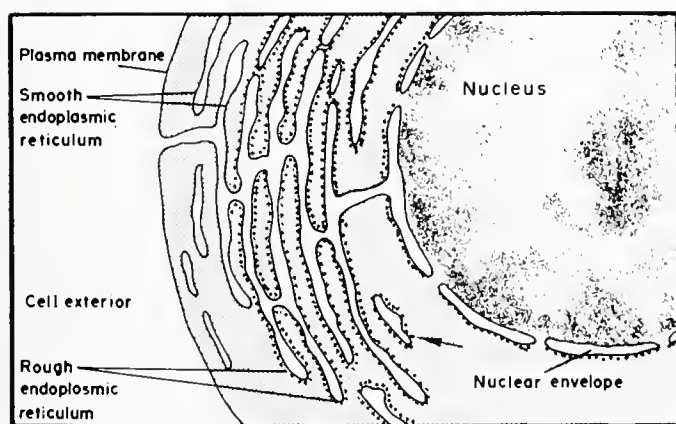


Figure 1.

Illustration of the nucleus, cytoplasm, and endoplasmic reticulum of a cell. The arrow indicates ribosomes around the endoplasmic reticulum.

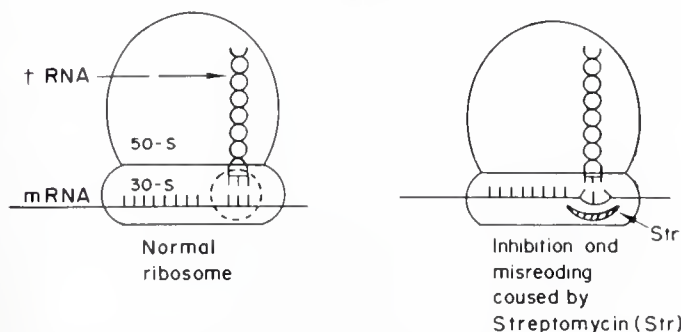


Figure 2.

Diagrammatic illustration of the mechanism by which streptomycin inhibits protein synthesis.

the sensitivity of microorganisms, these two antibiotics are remarkably similar. Tobramycin is effective against most strains of certain enterobacteriaceae such as *Pseudomonas*, *Klebsiella*, *Escherichia coli*, *Serratia*, and many of the other gram negative bacilli which infect hospitalized patients today. This drug is also similar to gentamicin in that it is very effective in the test tube, yet not accepted in practice, against the staphylococci. The claim has been made by the manufacturer that tobramycin is quantitatively more effective than gentamicin against gram negative bacteria which are qualitatively susceptible to both drugs. When this has been tested in various laboratories in studies subsidized by the manufacturer, this claim has generally been substantiated. Burger and associates studied this point carefully by comparing the susceptibility of 63 bacterial strains to tobramycin and gentamicin in each of five separate agar or broth media. In four of the media it was found that the 63 organisms were quantitatively more susceptible to tobramycin than to gentamicin, but in the fifth medium the opposite was found. On the other hand, gentamicin is quantitatively a bit more effective than tobramycin in the test tube against strains of *Serratia*. Another claim which appears to be well substantiated is that there are some strains of *Pseudomonas* which are partially or totally resistant to gentamicin. Studies showed from 22 to 91% of these resistant strains to be sensitive to tobramycin. Whether a certain strain of *Pseudomonas* is resistant to gentamicin and susceptible to tobramycin or vice versa must be determined by individual susceptibility tests, however, 75-95% of gram negative enterobacteriaceae are generally susceptible to both gentamicin and tobramycin. This is true unless there happens to be genetically transmitted "R-factors" which are transmitting resistance to one or both of these antibiotics from one strain of bacteria to the next. Thus, in the final analysis whether either gentamicin or tobramycin can be recommended for use in gram negative sepsis of unknown etiology must be determined by sensitivity tests of these two antibiotics on several hundred strains of gram negative rods in the individual hospital.

The pharmacology of tobramycin is very similar to that of gentamicin. Recommended dosage and blood levels of the two drugs are approximately the same. Effective blood levels are 4 to 8 mg/ml of serum. Levels greater than 12 mg/ml

of tobramycin would be considered toxic to the vestibular branch of the 8th cranial nerve, and levels less than 4 mg/ml are probably inadequate for antimicrobial activity. The excretion of the two drugs is also qualitatively similar. Tobramycin is excreted by the glomerulus. As with gentamicin, impaired renal function signaled by elevation of the BUN and creatinine can produce accumulation of this drug in the serum to well above toxic levels. The toxicity of tobramycin is roughly two-fold: it causes 8th nerve damage and probably involves the vestibular more often than the auditory division. Also, tobramycin is probably nephrotoxic in much the same way as is gentamicin. Since other aminoglycosides cause neuromuscular paralysis when toxic levels occur, one would suspect that this is a feature of tobramycin also. It has been claimed but not proven that the ototoxicity of tobramycin is less than that of gentamicin. The main point regarding the toxicity of tobramycin is that, as with gentamicin, a number of factors in clinical practice must alert the physician to the possibility that his patient may be developing nephrotoxicity or more importantly ototoxicity. The first indication is an elevated BUN, elevated creatinine, or depressed creatinine clearance. The BUN changes are often subtle — a patient with a BUN of 14 or 15 may develop a BUN of 19 or 20 to 22 mg% while receiving tobramycin or gentamicin. This finding should alert the physician to discontinue or greatly reduce the dose of the drug if this trend continues. In this type of patient, with a rising BUN, it is virtually impossible to control the serum levels of aminoglycoside antibiotics to insure subtoxic levels, the use of nomograms and measured serum levels of the drug. However, if the patient has stable renal dysfunction, generally safe serum levels of the aminoglycosides can be maintained by means of a nomogram to prescribe a reduced dose and by closely monitoring serum levels. Secondly, patients over 60 years of age are more likely to develop ototoxicity with the aminoglycosides. In addition, patients who have recently received large doses of these antibiotics should be treated with greater caution as should patients who already have vestibular or auditory nerve damage. Audiograms, nystagmograms, and caloric testing may be helpful but probably are of less value than nomograms and measurements of serum concentrations of the drug for guarding against toxicity. Certainly when a patient develops definite dizziness

or ataxia while receiving one of these drugs, the medication should be discontinued immediately. The overall incidence of ototoxicity with gentamicin has been in the neighborhood of 1 to 3% but more importantly a smaller number of patients have sustained tragic, irreversible inability to ambulate due to severe imbalance. It is indeed fortunate that the package insert of tobramycin contains a table for appropriate reduction of the dose of this drug based on the serum creatinine or creatinine clearance in the patient.

Clinical Information on Tobramycin

The clinical effectiveness of tobramycin has been assessed in a number of studies and comparisons of gentamicin, and tobramycin have also been made clinically. While clinical studies may be useful as a rough guide, they are often limited in value because of the inability of the investigators to adequately control the numerous variables in their study patients. Such variables include extent of disease, differences in host defense mechanisms among patients, the enthusiasm with which important supportive care measures were applied from patient to patient, and finally the presence of co-morbidity factors such as steroid therapy and granulocytopenia. However, it appears to be well accepted now that both gentamicin and tobramycin are very effective in urinary tract infection in which there is fever and the possibility of bacteriuria; these drugs are probably not indicated in uncomplicated lower urinary tract infection without fever. In 73 cancer patients tobramycin was found to be effective in 91% of 11 urinary tract infections, 47% of pneumonias, 33% of septicemias, and 54% of overall infections. In a patient with leukemia or agranulocytosis, the factor that determines success is not so much the antibiotic therapy, but rather whether the white blood cell neutrophil count rises to more than 1,000 per microliter (cubic mm). When the neutrophil count remains in the 100 per microliter range, approximately 25 percent of patients with infection show a clinical response to tobramycin. If the neutrophil count is above 1,000 per microliter range, one might expect roughly a 70% response rate depending upon the seriousness of the overall infection. In one study gentamicin and tobramycin appeared to have roughly equal effectiveness as therapeutic agents in 62 infections (Klastersky et al, 1974). For infections of unknown etiology in patients with acute leukemia or agranulocy-

tosis, our approach is to begin therapy with full doses of carbenicillin, nafcillin, and either gentamicin or tobramycin (provided there are no contraindications of these agents) rather than rely on gentamicin or tobramycin alone.

The dose of tobramycin is roughly the same as that for gentamicin. For serious life-threatening infections the dose should be 1.66 mg per kg of body weight every eight hours provided the renal function is normal. This should be reduced to 1.0 mg/kg Q8H as soon as clinically indicated; vestibular toxicity is more likely to occur if treatment is extended longer than 10 days. For urinary tract infections a dose of 1 mg per kg every eight hours can be used. These dosages can be given intramuscularly, and for the patient with thrombocytopenia or reduced muscle mass they can also be given intravenously. For intravenous administration the dose is diluted into 50 to 100 ml of 5% Dextrose Injection and infused into the patient over a period of 20 to 60 minutes. For patients who have reduced renal function, the nomogram on the package insert of tobramycin conveniently allows one to prescribe a dose based on the serum creatinine or the creatinine clearance in that patient. Thus a patient who has a serum creatinine of 2.4 mg per 100 ml should receive 40% of the normal dose based on his weight. The dose on a per weight basis can also be calculated from a table within the package insert. The insert also states that in patients with reduced renal function, serum concentrations of tobramycin should be determined by microbiological assay whenever possible. A commercial manufacturer is presently preparing a bioassay kit for tobramycin serum levels which should be available in the near future. Of course, the manufacturer of gentamicin has a microbiological assay kit available for the measurement of serum concentrations of that drug.

Neither gentamicin nor tobramycin should be given concurrently with potent diuretics such as furosemide (Lasix®). Furosemide can cause ototoxicity, and intravenously administered furosemide enhances aminoglycoside antibiotic toxicity by altering antibiotic concentrations in serum and tissue.

Like gentamicin, tobramycin is dialyzable, so the patient on hemodialysis should receive a dose of the drug after the dialysis procedure. The amount of the dose is not currently available in the present literature with regard to tobramycin.

In the anephric patient the half life of tobramycin is 54 hours compared to two hours in the normal. A fairly well accepted dose of gentamicin after hemodialysis is 1 mg per kg body weight.

The overall place of tobramycin in the treatment of patients with bacterial infections is, of course, up to the individual physician and the individual hospital formulary committee. Most investigators accept tobramycin as an effective drug for bacterial infection due to susceptible gram-negative enterobacteriaceae. Certainly the drug is a useful and welcome addition to our armamentarium for those opportunistic pathogens which are very difficult to treat, including *Pseudomonas*, *Klebsiella*, and *Serratia*. Whether gentamicin, tobramycin, and future aminoglycoside anti-*Pseudomonas* drugs should be freely used on an open basis is a question which should be considered carefully. A current problem in many hospital centers in the United States is the "multi-resistant gram negative bacillus". Certain strains of gram negative bacilli are appearing which are resistant to virtually every drug in the pharmacy. A similar problem is that in many hospitals the percentages of *Pseudomonas* and *Klebsiella* which are susceptible to a given aminoglycoside antibiotic often progressively decrease from year to year. This phenomenon usually does not occur

unless the drug has been used extensively within the hospital. In addition, discontinuance of usage of a given aminoglycoside antibiotic has been shown to precede restoration of sensitivity of high percentages of bacteria to the antibiotic. For this reason, some hospital formulary committees are recommending that one effective aminoglycoside antibiotic be used on an open prescription basis while the other aminoglycoside antibiotic is held in a "restricted" status, the second antibiotic being held in reserve for bacteria which are resistant to the first or for clinical situations in which the antibiotic first prescribed appears to be ineffective.

Amikacin

Amikacin or BB-K8 is an aminoglycoside antibiotic which is very similar pharmacologically to kanamycin; that is, effective serum levels require a dose of approximately 500 mg (7.5 mg/kg) every 12 hours. The major difference between this drug and kanamycin is that BB-K8 is effective against most strains of *Pseudomonas*. Amikacin is apparently a poor substrate for certain of the bacterially produced enzymes which inactivate gentamicin and kanamycin. However, other enzymes also produced by the enterobacteriaceae can inactivate amikacin. As of this writing, amikacin has not been approved by the FDA.



Metabolic Acidosis

Michael Coleman, M.D.*

Before discussing metabolic acidosis per se, a review of basic physiology regarding renal acidification and the normal mechanisms by which the body prevents the development of acidosis is in order. The major extracellular buffer, sodium bicarbonate, is readily filtered at the glomerulus by the kidney; if the kidney were not able to maximally conserve bicarbonate, it would quickly be lost in the urine, resulting in acidosis. However, the kidney under most circumstances reabsorbs almost 100% of the filtered bicarbonate. This is chiefly a function of the proximal convoluted tubule, about 85 to 90% of the filtered bicarbonate being reabsorbed there. The remaining 10 to 15% is reabsorbed in the distal convoluted tubule, producing a fall in the urinary pH to approximately 6.2. A schematic representation of tubular bicarbonate reabsorption is shown in Figure 1. The second mechanism by which the body prevents the daily development of acidosis is the excretion of the excess hydrogen ion that builds up in the body with our normally acidic daily diet. This secretion of the excess hydrogen ion is chiefly a function of the distal convoluted tubule; it is then titrated or buffered by the major urinary buffers, disodium phosphate and ammonia (Figure 2).

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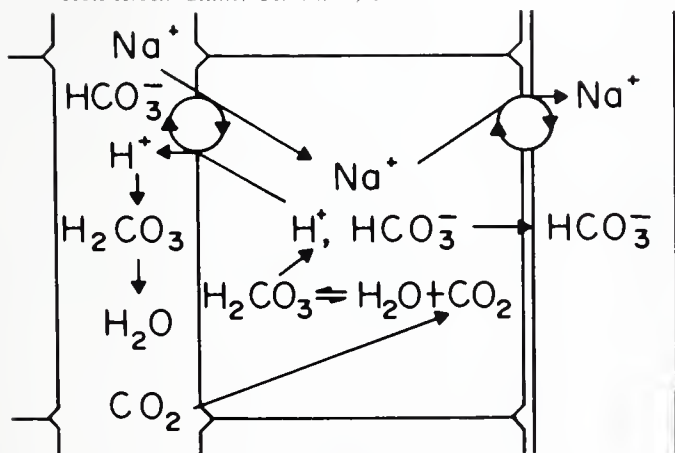


Figure 1.

Mechanism of bicarbonate reabsorption by the proximal and distal convoluted tubule.

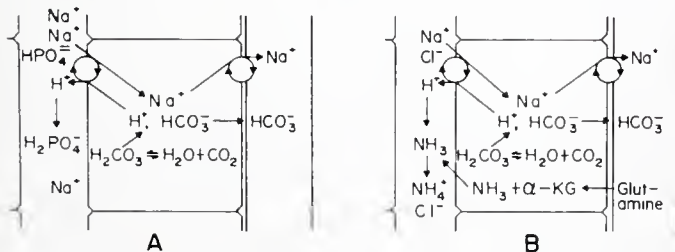


Figure 2.

Schematic representation of excretion of titratable acid (A) and ammonia (B) in the distal tubule.

Metabolic acidosis is defined as serum pH below 7.38 associated with a bicarbonate below 24 mEq/L and a pCO_2 less than 35 mm Hg. Metabolic acidosis can result from one of two causes: 1) The excessive production of acid by the body as in lactic acidosis or diabetic ketoacidosis, and 2) the failure of the kidney to reabsorb bicarbonate normally or excrete the body's buildup of excessive acid from our acidic diet.

In diabetic ketoacidosis a lack of insulin leads to the mobilization of free fatty acids by the hydrolysis of fats in adipose tissue. These free fatty acids are taken to the major metabolic machinery in the body, primarily the liver and the muscle. In the muscle they are readily converted to CO_2 and water; however, in the liver they can only be converted to the ketone bodies, acetone, acetoacetic acid and hydroxybutyric acid. These ketone bodies can subsequently be taken to muscle and converted to CO_2 and water, but their production in the liver is so excessive that it usually overwhelms muscle, resulting in accumulation of these ketone bodies and acidosis. The treatment of diabetic ketoacidosis is treatment of the primary metabolic abnormality, that is, the administration of insulin to prevent the mobilization of the free fatty acid and the buildup of ketone bodies. In addition the volume losses and electrolyte losses due to the glycosuria must be replaced. If excessive acidosis ($pH < 7.2$) is associated with hypotension then intravenous bicarbonate may be necessary but one must be careful to avoid rapid correction of the acidosis and exacerbation of the central acidosis. As the systemic acidosis is corrected the bicarbonate rises, the lungs stop hyperventilating, and the pCO_2 rises in the blood, it can readily diffuse across the blood-brain barrier. However, bicarbonate is an anion and has to be actively transported across the blood-brain barrier and does not diffuse across as rapidly as CO_2 . If one rapidly treats the systemic acidosis with bicarbonate, one can increase the pCO_2 in the serum and in the CNS without bicarbonate being able to transverse the blood-brain barrier as rapidly. This leads to the profound exacerbation of the central acidosis and deterioration in the mental status of the patient, who may develop stupor, coma, and seizures.

Another form of excessive acid production in the body which leads to metabolic acidosis is

lactic acidosis. This is seen in severe hemorrhage, sepsis, cardiogenic shock, drug overdose, phenformin ingestion and also idiopathic acidosis. In hemorrhage, sepsis, shock and drug overdose there is inadequate peripheral circulation, lack of oxygen delivery to the metabolic machinery, and a shift of metabolism within the cell from aerobic metabolism to glycolysis. This leads to an accumulation of lactic acid. The main thrust of therapy is correction of the cause of the inadequate circulation by means of blood transfusion in hemorrhage, antibiotics in sepsis, dopamine in cardiogenic shock, and removal of the offending drugs in drug overdose. However, in most instances one must also give intravenous bicarbonate for once the blood pH falls below 7.2 the heart and the peripheral vasculature do not respond normally to sympathetic stimulation or circulating catechols and cardiovascular collapse ensues. Again, IV bicarbonate must not be administered too quickly. To avoid this one can administer the bicarbonate using the base deficit (B.D.) method, calculated as follows: $B.D. = 0.4 \times \text{kg body wt.}$

$$(\text{fHCO}_3 - \text{iHCO}_3)$$

$\text{fHCO}_3 =$ desired bicarbonate concentration (usually 20 mEq/L)

$\text{iHCO}_3 =$ patient's bicarbonate concentration

One usually gives one-half to two-thirds of the base deficit over a two hour period, then the bicarbonate level is redetermined and the base deficit is recalculated. In addition, one must also replete the body's potassium; a shift of potassium to the extracellular space and potassium depletion may occur in systemic acidosis. As one corrects the acidosis, producing a shift of the potassium back to the cells, hypokalemia and life threatening cardiac arrhythmias may arise, especially if the patient is on digitalis.

Having discussed the non-renal causes of metabolic acidosis let us discuss the various forms of renal acidosis. One example is uremic acidosis, in which severe renal insufficiency is present with the glomerular filtration rate less than 25 cc per minute. The etiology of the acidosis is two fold. First, proximal bicarbonate reabsorption is abnormally low, and one has urinary bicarbonate wasting. Secondly, ammonia production in the distal convoluted tubule is subnormal, thought to be due to the excessive accumulation of parathormone in uremia. This is based on the obser-

vation that parathyroidectomy in the uremic patient can correct the acidosis. In addition, infusion of IV calcium can produce a fall in the serum parathormone and the acidosis will correct. Similarly infusion of parathyroid extract into normal subjects produces a proximal renal tubular acidosis. The treatment of this form of acidosis is directed toward oral alkali replacement. Most patients with uremic acidosis are not symptomatic from the acidosis unless the bicarbonate level is less than 15 mEq per liter, but under these circumstances alkali replacement in the form of sodium bicarbonate or 10% sodium citrate or Schohl Solution is the best form of therapy. Since each cc of Schohl's solution contains 1 mEq sodium one must be careful to avoid volume overload in patients with severe renal insufficiency.

A second form of renal acidosis which is seen in chronic renal insufficiency is hyperchloremic acidosis. The renal insufficiency is less severe; the clearance is between 25 and 30 cc per minute. The patient is hyperchloremic, hyperkalemic, and can acidify the urine. Typically these patients have a nonglomerular form of renal insufficiency but rather interstitial disease, such as Balkan nephritis, lead nephropathy, phenacetin-induced interstitial nephritis, polycystic kidney disease, or obstructive uropathy with chronic pyelonephritis. Alkali therapy is the same as uremic acidosis, except most of these patients require much more alkali therapy than the patient with uremic acidosis.

A third form of renal acidosis is proximal, or Type II, renal tubular acidosis. This form involves malfunction of the proximal convoluted tubule, so that it cannot reabsorb bicarbonate normally. Nephrocalcinosis is frequently present. There is usually hypokalemia with renal potassium wasting in the presence of secondary hyperreninism and hyperaldosteronism. The mechanism for proximal renal tubular acidosis is thought to be due to hyperparathyroidism, based upon the observation that patients with renal tubular acidosis have elevated parathormone, and IV calcium corrects the acidosis as the elevated parathormone levels fall. In addition surgically induced hypoparathyroidism in patients with proximal renal tubular acidosis corrects the renal tubular acidosis. These patients, since they cannot reabsorb filtered bicarbonate, require large doses of alkali to correct their acidosis, usually greater than or equal to 10 mEq per kilogram per day.

The fourth and final form of renal acidosis is distal renal tubular acidosis (Type 1; classic RTA). In this disease the distal nephron is unable to secrete hydrogen ions against a gradient, and cannot excrete the daily dietary acid load. Urinary pH is greater than 5.5 at all times. Like patients with proximal renal tubular acidosis, however, they may have nephrocalcinosis, renal potassium wasting and sodium wasting with secondary hyperaldosteronism. In contrast to patients with proximal RTA who usually require large doses of alkali therapy, (≥ 10 mEq/kg/day), distal RTA usually requires only about 1 mEq/kg/day. In addition, the potassium wasting in the proximal type usually does not im-

prove with correction of the alkalosis, whereas in distal RTA it does. In fact, in proximal RTA as the alkalosis is corrected wasting may occur. Characteristically, in distal RTA the urinary pH remains above 5.5, whereas in patients with proximal RTA whose plasma bicarbonate is below the tubular maximum for bicarbonate reabsorption, complete bicarbonate reabsorption occurs and maximum acidification of the urine can occur (urinary pH <5.5). In proximal RTA with normal plasma bicarbonate levels, proximal reabsorption is impaired and the resulting bicarbonaturia leads to an inability to maximally acidify the urine. A comparison of proximal and distal RTA is seen in Table I.

Table I. COMPARISON OF PROXIMAL AND DISTAL RTA

	<i>Proximal Renal Tubular Acidosis</i>	<i>Distal Renal Tubular Acidosis</i>
Bicarbonate wasting	Present	Absent
Urinary pH	Less than 5.5 at low plasma bicarbonate concentrations; greater than 5.5 at normal plasma bicarbonate concentrations	Always greater than 5.5; even after an acid challenge, e.g. NH_4Cl
Alkali therapy	Greater than 10 mEq/Kg/d	1-2 mEq/Kg/d
Nephrocalcinosis	May be present	May be present
Potassium wasting and hypokalemia	Exacerbated by correction of the acidosis	Corrected by correction of the acidosis
Sodium wasting and secondary hyperaldosteronism	May be present	May be present



The New Anti-Inflammatory Agents: Phenylalkanoic Acids

Eleanor A. Lipsmeyer, M.D.*

In rheumatoid arthritis the inflammatory reaction (heat, erythema, edema, and pain) is thought to be produced by polymorphonuclear leukocyte phagocytosis of immune complexes. Phagocytosis stimulates lysosomal release of lysozymes. In some way, also, histamine, bradykinin, serotonin and prostaglandins (PG) are thought to play a supporting role in inflammation.

Current experimental evidence shows that:

- 1) PG's are present in certain inflammatory reactions. When ASA or indomethacin are present, inflammation is inhibited and PG's are not found.
- 2) ASA or indomethacin are "inhibitors of PG synthetase," the enzyme which activates PG at the site of action.
- 3) ASA or indomethacin act upon white blood cells — not by prevention of migration into the site of inflammation, but by prevention of lysozyme release.

ACETYSALICYLIC ACID (Aspirin) (ASA)

ASA remains the best and most trusted anti-inflammatory agent, and serves as the standard against which all anti-inflammatory drugs are judged. The acetyl radical is quite important, since certain effects are the consequence of trans-acetylation of proteins in the biologic process. Acetylation of platelet membrane proteins may be the mechanism by which ASA inhibits platelet aggregation. The acetyl group also mediates GI toxicity. Removal of this group decreases GI toxicity, but unfortunately decreases anti-inflammatory activity also.

Because of these side effects, we continue to search for new nonsteroidal anti-inflammatory agents which have less side effects but equal or increased potency.

PHENYLALKANOIC ACIDS are the newest group of anti-inflammatory agents which either have been or soon will be made available in various forms. (Table I)

A. *Ibuprofen* was the first drug produced in this group. It had marked hepatotoxicity with hepatocellular necrosis and was withdrawn from use.

Table I. PHENYLALKANOIC ACIDS

GENERIC			
NAME:	IBUPROFEN	FENOPROFEN	NAPROXEN
TRADE			
NAME:	MOTRIN	NALFON	NAPROSYN
MADE BY:	UPJOHN	DISTA	SYNTEX
SUPPLIED:	300; 400 MG	300 MG	250 MG
DOSAGE:	800 MG TID	600 MG QID	750 MG BID

B. *Ibuprofen* (Motrin) (2-4-isobutyl-phenyl-propionic acid) differs from original drug by only a single methyl group, but even minimal elevation of serum enzymes has been infrequent. It has been shown to act as an analgesic, and in high doses as an anti-inflammatory drug.

Toxicity: Diminished GI irritation was determined in long-term tolerance, but there is some tendency toward peptic ulcer. No effect on platelet aggregation is known.

Clinical: Some investigators found little evidence that the drug was any better than ASA in double-blind controlled trials; however, these were conducted with doses of 1200-1600 mg. Further evaluation has shown that ibuprofen has good anti-inflammatory effect at a dosage of 2400 mg/day. Since such large doses are necessary for anti-inflammatory effect, this drug will probably be most useful in disease with less inflammation, such as degenerative joint disease, where it has a good analgesic effect.

C. *Fenoprofen calcium* (Nalfon) (Ca salt of d 1-2-3-phenoxyphenyl-propionic acid) was initially evaluated as a sodium salt, but problems of stability led to testing as a calcium salt. It has shown to have anti-inflammatory and anti-pyretic activity. It acts as a potent inhibitor of prostaglandin synthetase, by *in vitro* measurement of prostaglandin E₂ synthesis from arachidonic acid by bovine seminal vesicle microsomes.

The drug is only 80% absorbed. When given with ASA both fenoprofen and indomethacin plasma concentrations were reduced significantly. Fenoprofen does not affect plasma concentrations of salicylates, however. The half-life of fenoprofen is 160 minutes.

Toxicity: Dyspepsia occurs less frequently than with ASA. GI micro-bleeding with ASA was greater than with fenoprofen. Long-term studies show that peptic ulceration may occur.

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Clinical: Both fenoprofen and ASA were found to be similarly effective agents in rheumatoid arthritis with average daily doses of 2.1 gm fenoprofen compared with 4.5 g ASA. There is significant reduction in pain, duration of morning stiffness, analgesic requirements, and articular index, with increase in grip strength. No significant reduction in joint size or temperature was noted. Strikingly fewer side effects were present when the drug was compared with ASA. It appears that fenoprofen will provide a useful, although not dramatic additional agent with which to manage patients with rheumatoid arthritis.

D. *Naproxen* (Naprosyn) (d-2-6' methoxy-2'-naphthyl-propionic acid) anti-inflammatory, analgesic, and antipyretic activity has been demonstrated *in vitro*. It has been evaluated as an inhibitor of PG synthetase and found to be superior to ASA in such a system.

It is acidic and highly albumin-bound. After oral administration, it is promptly and fully absorbed. The mean half-life of the drug in man is 14 hours so a twice-a-day schedule can be used. Albumin binding and competitive displacement are also responsible for potential interactions with drugs such as warfarin, sulfonylureas, and ASA.

Toxicity: Naproxen and ASA in anti-inflammatory doses were compared for local effect on gastric mucosa in normal subjects. After 7-day treatments, gastroscopy revealed some degree of gastric pathology in all patients with ASA; only one abnormality was found in the subjects given naproxen. Subjective side effects and occurrence of blood in gastric contents roughly paralleled gastroscopy findings. In 35 patients receiving naproxen for one year, no major upper GI side-effects were noted.

As an index of platelet aggregation, bleeding times were done after ASA and naproxen. During therapy with both drugs, bleeding times were prolonged. Ninety-six hours after cessation of

therapy, ASA-treated patients still showed prolonged bleeding times, while naproxen patients did not. Prolonged effects of ASA are consistent with the postulate that ASA permanently acetylates the platelet membrane, and thereby impairs its function for the lifespan of the platelet. Mechanism of platelet alteration in naproxen is not known.

Clinical: In rheumatoid arthritis a single-blind crossover comparison of ibuprofen, fenoprofen, and naproxen (without placebo) was performed in 25 patients. They were given either 2.4 g ibuprofen/day; 2.4 g fenoprofen/day; or 750 mg naproxen/day. Anti-rheumatoid activity (measured by limbering-up time, pain severity, and joint tenderness) was greatest with naproxen and least with ibuprofen. Patient preference was strongly in favor of naproxen, with fenoprofen a second choice in a majority of cases. Side effects were not serious; the incidence on naproxen was slightly lower. There was a higher drop-out rate on ibuprofen.

In degenerative joint disease it was used in a double-blind comparison with indomethacin. In most parameters there was a significant improvement on both drugs. Drug-related side effects on naproxen were significantly lower than those on indomethacin.

In ankylosing spondylitis naproxen was compared with previous therapy (either phenylbutazone or indomethacin). Most patients have less pain and morning stiffness with increased flexion of the lumbar spine. Immobility stiffness was improved; many patients could sit indefinitely without becoming stiff.

Within the next year, several new non-steroidal anti-inflammatory drugs will become available. Although their ultimate efficacy remains to be determined, it would appear that physicians will soon have drugs with improved anti-inflammatory effect and lesser toxicity for the treatment of arthritis.



Colonoscopy

Donald G. Browning, M.D.*

Colonoscopy, or coloscopy, had its beginning in the 1960's. Originally, upper GI endoscopes were utilized, and soon thereafter, specific colonoscopes were developed with characteristics of the scope having been altered for use in the colon. A fiberoptic glass bundle system is used for visualization. The first instruments were a short 60 cm, being designed for use in the sigmoid and the descending colon, but increasing experience created a demand for a scope that could be inserted into the cecum. Subsequently, the 186 cm Olympus CFLB colonoscope was developed, along with others, so that it is now possible to predictably visualize the entire colon as well as the ileocecal valve and the terminal ileum. Mucosal diseases of these organs may be visualized, biopsies and washings for cytology obtained, and foreign bodies and polyps may be removed.

The techniques of diagnostic and therapeutic colonoscopy obviously require adequate training, and there are far too few colonoscopists presently available. This procedure is now done by gastroenterologists and other internists, surgeons, radiologists and even pathologists. This need is illustrated by a recently published endoscopic text by Berry, in which Shinya, Eddy and Overholt state that if there is indication for a barium enema, there is indication for a colonoscopy. Realizing the impracticality of this approach, some of the more recognized indications are: 1) colonic bleeding, 2) clarification of x-ray findings, 3) polypectomy and other elective surgical procedures, 4) suspected carcinoma in the presence of sigmoid diverticular disease, 5) biopsy confirmation of carcinoma and to exclude multiple lesions, 6) postoperative colon, 7) inflammatory bowel disease, 8) irritable colon syndrome, 9) terminal ileal disease, 10) familial history of colonic cancer or polyps, and 11) prior to colostomy closure. Contraindications for this procedure are those which would be expected: 1) perforating disease of the colon, 2) toxic megacolon, 3) recent myocardial infarction, 4) recent abdominal surgery, 5) aortic iliac aneurysm, 6)

peritonitis, 7) pregnancy, 8) acute anal disease, and 9) hepatitis. Findings at colonoscopy include: 1) carcinoma missed by x-ray, 2) colonoscopic diagnosis of carcinoma in the presence of diverticular disease, 3) ulcerative colitis, 4) granulomatous colitis, and 5) regional enteritis.

The American Society for Gastrointestinal Endoscopy, in their 1974 survey, reported that diagnostic colonoscopies numbering 25,928 caused 55 perforations and two deaths. In 6,214 polypectomies, there were 115 hemorrhages and 18 perforations. Our series includes more than 2,100 diagnostic colonoscopies since 1971 with no deaths and no perforations. In this series, there was one myocardial infarction and one respiratory arrest due to the sedative; both responded well to conservative therapy. Over 550 polypectomies have been performed, with no deaths or perforations; six have bled, two required surgery for hemostasis, and two others required blood transfusions.

Endoscopic polypectomy is accomplished by inserting an insulated wire snare down the biopsy channel of the colonoscope. The wire loop is manipulated around the stalk of a pedunculated polyp or around the base of a sessile polyp. A coagulating current is then passed through the snare, resulting in severing of the polyp and simultaneous hemostasis. The polyp is removed through the biopsy channel, or if the tissue is too large for removal by this method, it is sucked into the tip of the scope and the entire scope with polyp is removed. When polyps with carcinoma in situ are removed endoscopically, this may be considered a cure; however, frequent endoscopies for observation of the area are recommended. If there is invasion of the stalk or the muscularis mucosa, then surgery is recommended.

In summary, colonoscopy is still in its infancy; however, in the last few years, it has revolutionized our approach to the treatment of colonic polyps and added much to the armamentarium of diagnostic capabilities in diseases of the lower bowel.

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Dependency Cast for Humerus Fractures

Leighton Millard, M.D.*

The "dependency cast" was introduced by Caldwell in 1933¹ and continues to be good treatment for fractures of the shaft of the humerus. This is often referred to as the hanging arm cast. The shaft of the humerus is that part between the head and neck and the condyles. The hanging arm cast is indicated in transverse, oblique or spiral fractures of this area, whether or not displacement, shortening or comminution is present.

The treatment begins with the application of a well-padded, lightweight long arm cast from the wrist to the level of the fracture. The cast may extend one inch above the fracture if necessary. The elbow joint must be positioned at 90 degrees and the forearm in neutral position as to rotation. (Fig. 1)

*Little Rock Orthopedic Clinic, P.A., Little Rock, Arkansas.

¹Caldwell, J.A., "Treatment of Fractures in the Cincinnati General Hospital", *American Surgery*, Vol. 97, pp. 174-177, 1933.

A suspensary sling is then attached firmly to the cast, through a loop of plaster or wire to assure that this point of fixation remains the same at all times. The location of this attachment is then moved as necessary to obtain proper position and alignment of the fracture.

Shortening of one inch, 20 degrees of anterior angulation and 30 degrees of lateral angulation are acceptable and are compatible with the resumption of good function of joints and muscles.

To correct lateral angulation at the fracture, the sling should be fixed as shown in Fig. 2. Pulling on the dorsum of the wrist rotates the elbow forward to accomplish this correction.

Conversely, to correct medial angulation, the sling pulling on the volar surface of the wrist, rolls the elbow backward. (Fig. 3)

Posterior angulation can be improved by lengthening the sling, as seen in Fig. 4. Also,



Figure 1.



Figure 2.

shortening the sling allows correction of anterior angulation. (Fig. 5)

Two other adjustments are possible to control the amount of traction on the fracture. Figure 6 indicates that placing the point of fixation close to the wrist increases the length of the lever arm and thereby increases the downward pull on the fracture. Figure 7 is just the opposite. With the sling fixed close to the elbow, the lever arm is shortened and the pull is decreased.

Overweight patients, especially if a large breast is present, may need a pad between the elbow and chest. This is illustrated in Fig. 8.

All of these mechanical considerations are worthless unless the cast remains dependent and without *any* support under the elbow at all times. This must be emphasized to the patient. As

you will see in Figure 9, an upturned chair and pillows can be used to stabilize the patient



Figure 5.

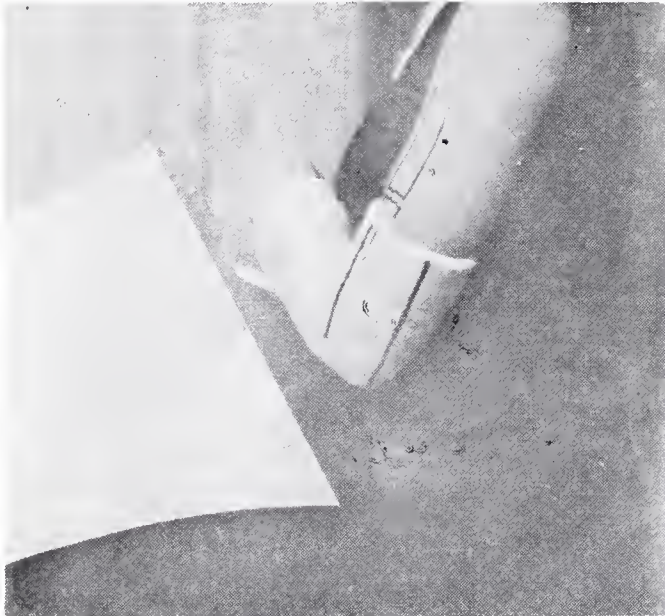


Figure 3.



Figure 6.



Figure 4.

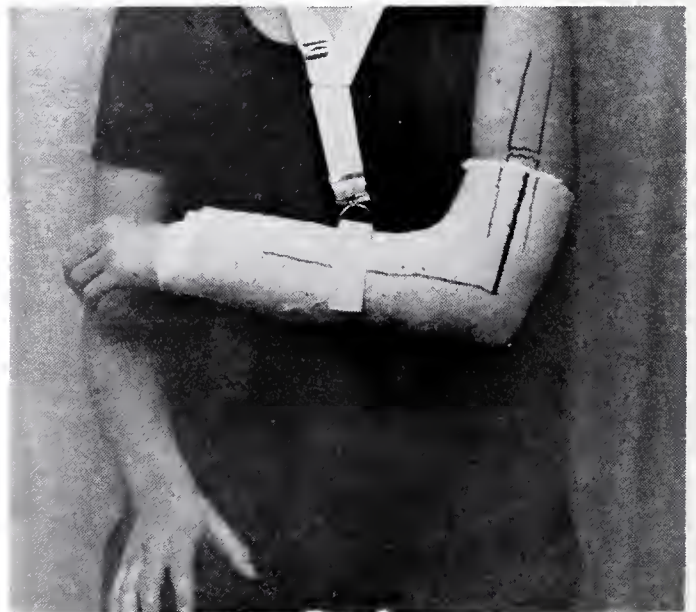


Figure 7.

in a semi-upright position for sleeping.

The patient should also start gravity circumduction exercises in 4-5 days. This is done by having the patient bend forward and swing the cast in gradually increasing circles. This will help to prevent shoulder joint stiffness.

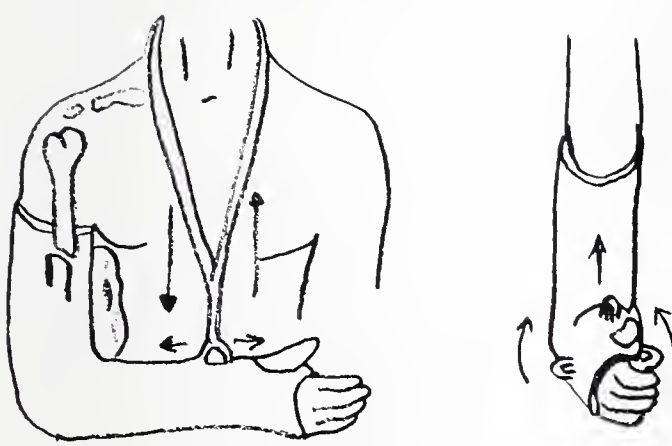


Figure 8.



Figure 9.

It is important to remember to record a good examination of the nerve functions of the involved hand. Fourteen percent (14%) of these injuries exhibit transient nerve palsies.

If nerve function does not return within 3 months, surgical treatment may be necessary. It is preferable when doing nerve repair to have the fracture healed.

The usual adult patient will require 4-6 weeks of cast treatment. Children require 3-4 weeks. Range of motion and muscle strengthening exercises should then be started.

In conclusion, fractures of the humeral shaft respond well to dependent cast treatment if a few basic principles are followed. Open reduction is seldom indicated.

TABLE ONE

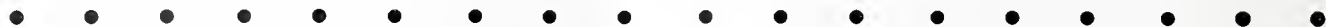
<i>To Correct</i>	<i>Fix Sling</i>	<i>Elbow Moves</i>
lateral	on dorsum	forward
angulation	wrist	
medial	on volar	backward
angulation	wrist	
posterior	lengthen	lateral
angulation	sling	
anterior	shorten	medial
angulation	sling	
not enough	closer to	downward
traction	wrist	
too much	closer to	upward
traction	elbow	



CORRECTION

The authors of the July, 1976, feature of Office Orthopaedics: "Motorcycle Injuries: Problem Without Solution" were:

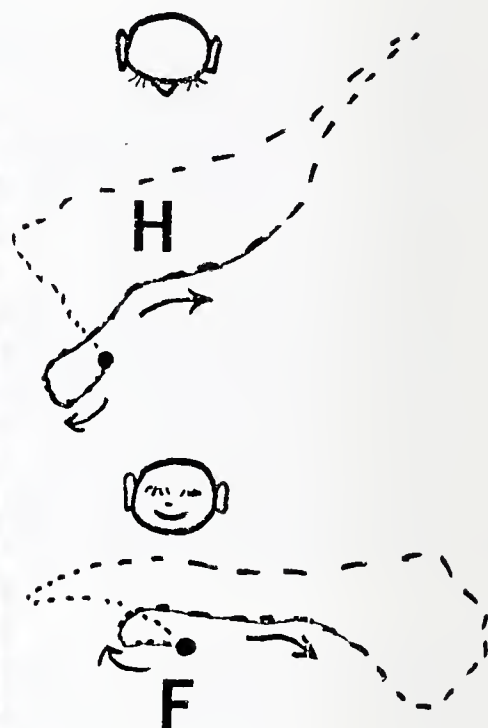
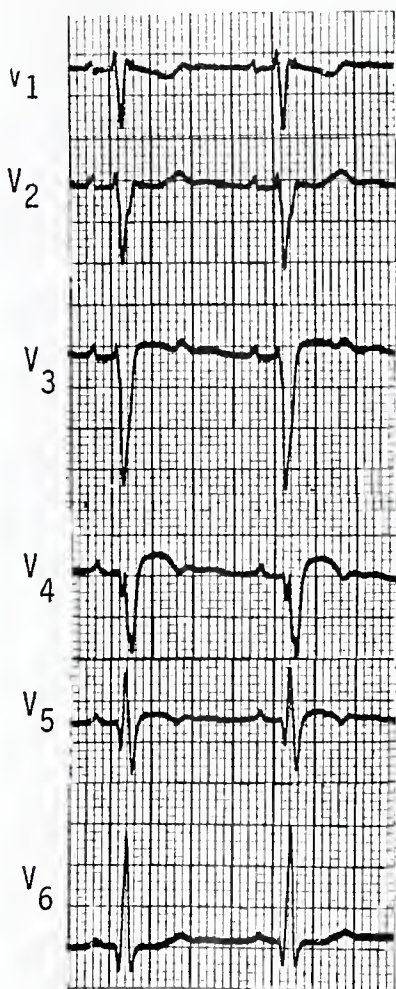
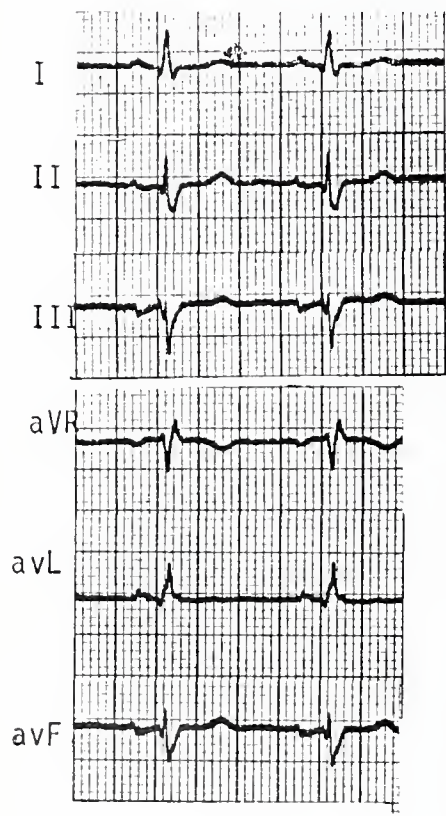
- C. Frank Dodson, Jr., M.D.
 Little Rock Orthopedic Clinic, P.A.
 P. O. Box 5270
 Little Rock, Arkansas 72205
- Carl Lee Nelson, Jr., M.D.
 Department of Orthopedics
 University of Arkansas for Medical Sciences
 Little Rock, Arkansas 72201
- Chet J. Janecki, M.D.
 Veterans Administration Hospital
 300 East Roosevelt
 Little Rock, Arkansas



The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 157)

The patient was a 54-year-old white male with previous history of infarction.



John E. Douglas, M.D.
Acting Chief of Cardiology
University of Arkansas for Medical Sciences
Little Rock, Arkansas 72201



Dirofilaria Immitis (Heartworms)

Harvie R. Ellis, D.V.M.*

Many people are aware of the fact that worms are quite common in dogs. It is also known by dog owners that heartworms make up a group of parasites that have a very serious impact on the dog's health. The official name for this particular parasite is *Dirofilaria immitis*, which means "evil thread." Human *Dirofilaria immitis* infection has also been reported.

The literature states that canine heartworm disease is worldwide in distribution. For many years the infection was described as having the highest incidence in the Gulf and South Atlantic Coastal States in North America. Further expansion has taken place because the infection has been reported as far north as Maine and inland to Illinois, Wisconsin and Michigan.

Dirofilaria immitis (heartworms) is a vector-borne disease that is transmitted by mosquitoes. The specific mosquito vectors have not been fully identified, but it is reported that the larvae develop in at least sixty species. It is also stated that many mosquitoes are themselves killed by the filaria. The life cycle involved uptake of microfilaria from the peripheral circulation of dogs by a mosquito and subsequent transmission to uninfected dogs. Most dogs with heartworm disease may die if left untreated.

In severe cases of canine heartworm disease, the dog usually presents an appearance of unthriftiness, weight loss, may tire easily and cough after exertion. Sudden violent exercise of these severe cases may cause a critical inability of the lungs to function properly because of blockage of the pulmonary artery by adult heartworms. The distressed animal may present a gasping for breath. If blockage of the posterior vena cava

has occurred, it may cause a liver failure syndrome and a blood sample usually shows icterus with large numbers of microfilaria present.

In the treatment of canine heartworms, the animal must be given a careful examination to determine the subject's ability to withstand intravenous injections of thiacetarsamide. The owner of the dog should be advised of possible effects of the drug and of the reactions sometimes associated with dead and dying adult heartworms. While it is difficult to predict the severity of these reactions, it is possible to minimize and treat them.

The literature describes more than 50 human dirofilarial infections since the first identification of the disease in man in 1941. Human cases of *Dirofilaria immitis* reported in the United States have been scattered geographically. None have involved children.

The parasite's life cycle in man begins when a mosquito inoculates the microfilaria into the bloodstream and probably follows a course similar to that in dogs. Present information indicates that *Dirofilaria immitis* cannot reproduce in man. Thus, man is a dead-end host for the parasite.

The symptoms in infected humans are described as varied. Some individuals had malaise, myalgia, coughing, and low-grade fever. Radiographically, the disease presents pulmonary coin lesions, or nodular densities may be found in the lungs. The diagnosis of *Dirofilaria immitis* in man is reported to be very difficult because of similarity to other pulmonary lesions.

Physicians in some areas have indicated a need for more attention to the control of *Dirofilaria immitis* in its natural canine host. In recent

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years, canine heartworm disease has moved close to an epidemic situation because of the ban placed on the use of insecticides to control mosquitoes. In addition to mosquito control, dogs may be administered preventive medication during the mosquito season. Research is being applied by several companies in the development of a more effective treatment for canine heartworm disease. Perhaps a breakthrough will be found which will eliminate microfilaria in the

dog population.

A tabulation of the reported canine heartworm cases in Arkansas for the past five years is as follows:

Year	Cases
1971	10,102
1972	7,811
1973	9,572
1974	17,717
1975	14,694



EDITORIAL

Lungs

Alfred Kahn, Jr., M.D.

Tissue changes with aging has been a source of speculation and interest to the medical profession. Using tissue culture technique, normal tissue can be subcultured only a limited number of times. Malignant tissue can be kept alive for an apparently infinite number as the He La tissue. Experiments into the aging of tissue appear with regularity in the medical journals. One of the more recent is that of Sugihara and Martin (*Journal of Clinical Investigation*, Volume 56, Page 23, July, 1975), in which they tried to simulate aging and obstructive syndromes using formaldehyde. They found that using tissue from cat lungs they could plot a graph using force and strain as the two components; the tissue was examined before and after exposure to formaldehyde. The graphs show a displacement of the curves to the right by formaldehyde indicating a tissue change. They postulate the tissue change is due to cross linking in molecules, which is an old concept. They found that the maximum length of stretching of alveolar wall is diminished. They state that the resting length of alveolar wall after ex-

posure to formaldehyde is increased. They further found that the use of formaldehyde alone does not typify the aging process as much as the use of aldehyde plus elastase. The loss of extension of lung tissue in aging is a molecular event involving collagen cures, elastin and other tissues. It seems to be the result of bombardment with chemicals arriving from elsewhere in the body—but what are these chemicals and when do they originate? More basic chemical research is necessary to answer these questions.

Of more clinical interest is Macklem's article in *The New England Journal Of Medicine* (Vol. 339, p. 438, August 14, 1975) on "New Tests To Assess Lung Function." As Macklem points out, the conventional forced expiratory volume tests do not always reveal the disability produced by some diseases—even when supplemented by gas studies. Macklem points out that lung mechanics involve a study of what expands the lungs—that it overcomes the resistance to the flow of air down the lung passages, and overcomes the elastic recoil resistance. He defines elastic recoil pressure as the "difference between

the pressure in the alveoli and the pressure in the plural space." The lung volume, of course, changes with changes in elastic recoil pressure — and the change in lung volume induced by changes in the elastic recoil pressure is known as compliance. Macklem has a good demonstration of graphs plotting lung volume as the ordinate and elastic recoil pressure as the abscissa. Using this technique there is a fairly standard curve for normals. Patients with emphysema and asthma show a curve which is displaced upward and to the left. It is pointed out that in some cases where it is hard to differentiate asthma from emphysema, if the elasticity of the lung is in the normal range emphysema can be disproved. Another example he cites is that in the nodular lung with reticulate pattern, if there is increased elasticity, pulmonary fibrosis is likely; if the elasticity is not increased, sarcoiditis is then likely. Macklem also discusses the value of graphically demonstrating maximum expiratory flow against lung volume; this relationship is able to depict early airway obstruction. Either loss of elasticity or obstruction mechanisms in the airway are capable of decreasing flow rates. In emphysema, this curve is displaced downward; Macklem states that these patients accomplish increased breathing by increasing tidal volume or decreasing inspiratory time. Macklem lastly demonstrates graphically maximum expiratory flow against static elastic recoil, using the former as the ordinate; this graph will help to differentiate in cases of decreased maximum expiratory flow if the disorder is due to loss of lung elasticity or to increased airway resistance.

Buist has reviewed "The Single Breath Nitrogen Test" (*New England Journal of Medicine*, Volume 293, Page 438, August 28, 1975). Buist states that it was originally devised to detect uneven pulmonary ventilation and poor gaseous mixing, but that more recently, it has been modified so that it can pick up airway obstruction early in the course, possibly at a time when it can be reversed. In this study, nitrogen concentration is plotted as the ordinate against vital capacity as the abscissa. As one ages, closing volume and closing capacity decrease; these factors can be related to total lung capacity — and related to age; again there are graphs which indicate the normals for each age. The author states that increased closing volume and capacity

are seen in obstructive chronic bronchitis and emphysema. Increase in these two functions is found with conditions that increase pulmonary interstitial fluid. Buist regards this test as being helpful in assessing the effects of therapy on smokers and early detection of many lung diseases. Its main value is the detection of early disease.



Dr. Jack L. Blackshear

Dr. Jack L. Blackshear has been accepted for membership in the Pulaski County Medical Society. A native Arkansan, Dr. Blackshear attended Hendrix College in Conway and the University of Arkansas School of Medicine, receiving his M.D. degree from the latter in 1968. He interned at St. Vincent Infirmary in Little Rock and completed his training in internal medicine at University Hospital. Dr. Blackshear's office is located at the Baptist Medical Center in Little Rock. He is certified by the American Board of Internal Medicine.

ANSWER—Electrocardiogram of the Month

Abnormal ECG

Sinus rhythm @ 75/minute

PR interval = 0.16

QRS interval = 0.10

QT interval = 0.38

Small non-diagnostic Q's in II, III, AVF suggest loss of inferior forces as with diaphragmatic infarction. Loss of R waves in progressing from V1 through V4 compatible with an anterior infarction. Prolongation of the QRS with left axis deviation as seen in this patient suggests left anterior fascicular block. The Vectorcardiogram adds extra significance to the Q's in II, III, AVF supporting the probability of an old inferior infarction. The J and ST segment elevation in V4 and V5 suggest dyskinesia or aneurysm of the subjacent L.V. Cardiac Catheterization confirmed an apical L.V. aneurysm.

MEDICINE IN THE



THE MONTH IN WASHINGTON

The Administration has submitted an "encouraging report" to Congress on the Professional Standards Review Organizations (PSRO) program, but confessed at the same time that lawmakers should not expect too much in the way of cost savings.

Louis Hellman, M.D., head of the Health Services Administration, told the House Ways and Means Oversight Subcommittee that "important progress has been made." He said in the 203 designated PSRO areas there are 65 conditional organizations performing review and another 55 in the planning stage. By the end of the fiscal year, 120 conditional PSRO's will be in operation reviewing some 3 million hospital admissions, he said. More than 106,000 physicians are now members of organized PSRO's according to the Health, Education and Welfare Department official.

Dr. Hellman said the primary purpose of the PSRO program is quality assurance and that cost-effectiveness was a secondary objective. "The quality assurance activities of PSRO's may increase the utilization of some services while decreasing that of others," he testified as—"a word of caution on expectations of a PSRO's ability to control expenditures."

At the same time, however, the Subcommittee received other information from HEW suggesting substantial economy benefits from PSRO's. In response to a subcommittee questionnaire, HEW said in some areas the average savings has been on a one-to-four (cost to savings) ratio.

Subcommittee Chairman Charles A. Vanik (D-Ohio) said "we would like to discover whether the Congressional expectation that PSRO's will hold down costs is reasonable, since improved quality of care is often incompatible with lower costs. If the Congressional goal of holding down costs through PSRO's is not reasonable, then we must give renewed attention to finding other types of cost controls."

* * * *

Legislation requiring the government to give affected parties more rights to challenge and make recommendations on proposed federal regulations has been endorsed by the American Medical Association.

Specifically backed were bills introduced in the House by Rep. Thomas Kindness (R-Ohio) and in the Senate by Sen. Charles Mathias (R-Md.) providing remedial changes in the Administrative Procedures Act aimed at opening up regulatory procedures to assure that the government doesn't overstep Congressional intent or ignore it.

Raymond T. Holden, M.D., Chairman of the AMA's Board of Trustees, told the Senate Judiciary Subcommittee that such legislation "is a welcome move toward rectifying the many abuses which have arisen in the rule making process of administrative agencies."

This seems to have been especially true in the health agencies, according to Dr. Holden, who said that health regulations often have resulted in programs "unrecognizable in the original law."

At the same time, the AMA official said legislation to require complicated governmental review of regulations could "create a mechanism which could strangle the good intentions of remedial legislation."

* * * *

The Senate has passed 64-11 a bill broadening federal authority over clinical laboratories to include those engaged in intrastate operations and giving the government firmer standards control.

Under the legislation, HEW theoretically could apply the controls to individual physicians' offices. The pertinent provision states that the HEW Secretary "may exempt" such offices. As a condition of such exemption, physicians who use their offices as labs as an adjunct for treating their own patients would have to describe the qualifications of non-physician personnel who do lab work, how much they do, and the score each shows in any proficiency testing.

Sen. Carl Curtis (R.-Neb.) complained that "here the government is reaching down to the country physician's office . . . I say that we are removing from people the medical services that our society now provides by giving the federal government jurisdiction over them."

The bill, which now goes to the House where similar legislation is before the House Health Subcommittee provides:

- Federal licensing of all clinical laboratories. HEW would set standards and enforce them itself or delegate enforcement to states having statutory programs meeting federal criteria. Private nonprofit accrediting groups could be used to help enforce standards if they meet federal requirement but no exemption from licensure to privately accredited laboratories is provided.

- An advisory council with membership set at 12 persons, to include representatives of nationally recognized laboratory-accrediting bodies, directors of state laboratory-licensing programs, members of the public, and not more than three persons who are owners, operators, or directors of laboratories.

- HEW is authorized to waive for 2 years personnel standards for laboratory technicians employed in hospitals with fewer than 100 beds if located in a rural area.

- An office of clinical laboratories to administer one set of uniform standards.

- HEW may issue no license unless it has received from the applying laboratory "an accurate, itemized schedule of all current rates charged by the applicant for those laboratory services . . . and such other information as may be necessary, including full disclosures of any current contractual relationships, written or oral, between the applicant and physician respecting such services."

- Laboratories found to be engaging in illegal financial abuses would be subject to revocation of licenses.

* * * *

A Rand Corporation study says the amount people would have to pay in taxes under the disparate national health insurance (NHI) proposals before Congress wouldn't vary much and suggested this opens the door to compromise.

The study, financed in part by the government, was written by Bridger M. Mitchell, senior Rand economist, and William B. Schwartz,

M.D., a Rand consultant and Chairman of the Department of Medicine, School of Medicine, Tufts University.

The report said that the Administration's CHIP approach in its 1975 NHI bill provides a "surprisingly small" saving to middle and upper income taxpayers over the 1975 compromise Kennedy-Mills plan, although both provide essentially the same services.

The old Nixon Administration bill and the defunct Kennedy-Mills bill each would require total tax revenues of some \$45 billion to fund the health care of people under 65. The Rand team said the labor-supported Kennedy-Corman proposal would require \$68 billion, and the Long-Ribicoff bill, \$16 billion.

Finance by payroll and income taxes but requiring no payments to hospitals or doctors by patients, the Kennedy-Corman bill, despite its higher costs, would impose virtually the same total cost for health care on families earning under \$15,000 as the Administration and Kennedy-Mills bills, the report said.

But to raise the extra \$23 billion it would cost, the Kennedy-Corman bill would impose sharply increased taxes on upper income families — as much as \$1,000 a year more than under the Administration and Kennedy-Mills bills for a \$40,000-a-year family.

* * * *

One of the nation's most powerful unions — the Teamsters — backed away from support for the Kennedy-Corman bill to federalize national health care.

A high Teamsters official told a national health conference that "we have become increasingly distressed . . . by the possibility that a National Health Insurance plan which runs all of the money for the purchase of health care through the federal government, such as the Health Security Act (Kennedy-Corman), might be adopted . . . we cannot support a program that gives the federal government total control over financing and delivery of health care," said Daniel Shannon, Teamsters Executive Director of the Central States, Southeast and Southwest, areas, Health Welfare and Pension Fund.

Speaking before the National Leadership Conference on America's Health Policy in Washington, D. C., Shannon said "let's maximize the utilization of the private system rather than

handing the entire problem over to the government."

Hitherto, organized labor had presented what appeared to be a united block in favor of the Kennedy bill which would eliminate private health insurance and have the government finance all health care. The Teamsters had not been in the forefront of the labor push, but they had not opposed it.

* * * *

The Senate has passed legislation establishing a Presidential Commission to review all biomedical and behavioral research done by the government.

The Presidential Commission would replace an existing commission now working in the Department of Health, Education and Welfare. It would consist of 11 members from the fields of law, ethics, theology, the sciences, and health administration. Sponsors of the legislation want the Commission to have broad authority over all federal departments and agencies. A special section of the bill, now before the House, directs the Commission to investigate research in DNA.

* * * *

A top Food and Drug Administration official has warned that the integrity of the medical profession is threatened by the growing influence of drug companies on medical education and medical publications.

Bureau of Drugs Director Richard Crout, M.D., told a Senate committee that "educational materials produced by and for an industry with an interest in increasing sales of drugs, will—on balance—be biased in a direction intended to promote drug use."

Dr. Crout said he considers only the *New England Journal of Medicine* and the *Journal of the American Medical Association* to be "scholarly" publications. In the 26 other medical magazines, the content tends to be "overwhelmingly optimistic about drug therapy . . . the issue is not whether the article is scientifically correct or whether it is proper to publish such information . . . (but) whether such an article presents . . . in the guise of a scientific paper, promotional information which otherwise could not be legally published as drug advertising or drug labeling."

Crout was also critical of pharmaceutical companies' funding of continuing post graduate education for physicians.

The FDA will try to establish a clear definition of the role of audio-visual and printed materials funded by the pharmaceutical companies in post-graduate medical education, Dr. Crout told the Senate Monopoly Subcommittee headed by Sen. Gaylord Nelson (D.-Wis.).

Dr. Crout said the new regulations would "permit truly independently prepared educational materials which do not have an overall promotional message to be distributed by drug manufacturers."

* * * *

Federal control of medical devices similar to its present authority over drugs has been passed by the Congress into law, capping a ten-year campaign by the government.

The measure passed by Congress and sent to the White House for President Ford's signature provides three general classifications for devices.

Custom devices ordered by physicians for individual patients are exempt in most cases.

Federal courts in recent years have given the Food and Drug Administration considerable authority to regulate devices as well as drugs. The Congressional action had been long anticipated by FDA which has formed advisory committees that already have reviewed and classified most devices on the market.

Controversy in the past has erupted over intrauterine devices and cardiac pacemakers, among others.

In its report on the legislation, the House Commerce Committee said that "although many lives have been saved or improved by new discoveries, the potential for harm to consumers has been heightened by the critical medical conditions in which sophisticated modern devices are used and by the complicated technology involved in their manufacture and use. In the search to expand medical knowledge, new experimental approaches have sometimes been tried without adequate premarket clinical testing, quality control in materials selected, or patient consent."

The general aim of the legislation is to prevent public marketing of devices that aren't reliable or safe. FDA has always had the power to move against unsafe devices after the fact.

The three classifications are:

- General controls—record and report keeping, good manufacturing practices, registration

of manufacturers, prohibition of misbranded or adulterated products.

- Performance standards — standards will be set by the government.

- Premarket approval — covers implanted devices or those considered to be life sustaining or supporting. Devices not intended to remain in the body more than 30 days in general would not be considered implanted devices. Devices with a long history of safe use such as dental devices, bone screws and hip pins would not fall in this group.

Panels of experts will make classification recommendations on devices after which the HEW Department will classify the devices by regulation.

No one expects the device regulatory program to experience clear sailing. There will be many disputes over classifications and problems over what constitutes "custom devices" not requiring clearance.

At a recent conference on the devices legislation, William Wardell, M.D., of the University of Rochester School of Medicine, warned of "negative impacts" such as a lag in research and innovation in the device field.

FDA has divided devices into distinct categories:

orthopedics; cardiovascular diseases; dentistry; anesthesiology; obstetrics and gynecology; gastroenterology; urology; radiology; neurology; ear, nose, and throat disorders; ophthalmology; plastic and general surgery; physical medicine; clinical pathology; and general and personal use.

* * * *

The financial outlook for Social Security remains precarious, the Trustees of the system have reported to Congress. They predict Social Security will be running in the red for many years unless Congress moves swiftly to increase the tax.

The economic upturn over the past year has helped the short-range outlook somewhat since the last annual report to Congress, but over the long-haul Social Security appears to be in worse trouble than ever.

The actuarial shakiness of the Social Security system and public and Congressional resistance to increasing the Social Security tax bite have severely damaged prospects for sweeping National Health Insurance proposals based on Social Security financing.

The trust funds for Old Age and Disability Benefits will decline by \$4.3 billion this year, instead of the \$5.8 billion predicted in a 1975 report.

"The long-term picture is now shown, under new assumptions, as holding out the prospects of higher future costs than had been previously projected." Social Security Commissioner James B. Cardwell said.

Cardwell is Secretary of the Board of Trustees which includes Treasury Secretary William Simon, HEW Secretary David Mathews and Labor Secretary W. J. Usery.

The report covers the four trust funds established for Social Security programs, including the Old Age and Survivors trust funds, disability insurance, and Medicare hospital and supplemental insurance.

* * * *

President Ford has told Congress that deaths from coronary heart disease, stroke and hypertension continue to decline. The third annual report of the National Heart and Lung Institute which Ford sent to Congress said that the new initiatives undertaken since 1972 provide "encouraging programs in the fight against heart, blood vessel, lung and blood diseases." "These diseases, in 1972, led to an estimated national economic loss of more than \$57 billion annually," Ford said.

* * * *





PERSONAL AND NEWS ITEMS

Physicians Announce New Associate

Dr. Nathan Poff and Dr. D. H. McClanahan have announced the association of Dr. Harrol Cranford with the Heber Springs Clinic. A 1974 graduate of the University of Arkansas School of Medicine, Dr. Cranford will practice general medicine.

Dr. Cathey Honored

The Union County Medical Society honored Dr. Arley D. Cathey with a reception and banquet on June 29th, the day officially declared Dr. Cathey Day in El Dorado. Dr. Cathey received a plaque of appreciation for tireless service from the Union County Medical Society and he was presented a key to the city by the mayor of El Dorado. Dr. Jacob Ellis of El Dorado served as master of ceremonies at the banquet and Dr. Robert Watson of Little Rock was guest speaker.

Dr. Cathey retired from practice in December 1975, at the age of eighty-seven—sixty-four years following his graduation from the University of Louisville in 1912.

Dr. Citty is Guest Speaker

Dr. Jim Citty of Searcy talked on abortions and presented slides on the subject at the Searcy Breakfast Lions Club meeting in June.

Physician Receives Award

Dr. Donald L. Viner of Benton was the recipient of an outstanding member award during the Saline Memorial Hospital Ten Year Club Awards Banquet last month. Dr. John D. Wright of Benton received recognition for entering the twenty year status.

Dr. Teeter Honored

Dr. Stanley Teeter of Russellville was chosen by the Arkansas Polytechnic College for induction into the college's Hall of Distinction during its 50th homecoming observance scheduled for October 23rd.

Batesville Gets New Doctor

Dr. William J. Alexander, III, recently opened his office at the North Arkansas Clinic Building in Batesville for the general practice of medicine.

Dr. Caplinger Receives Award

Dr. Kelsy Caplinger, a Little Rock Pediatric Allergist, was named winner of the Governor's Honor Award for volunteer service. Dr. Caplinger is the founder of the Aldersgate Medical Camps which are for children with handicaps or medical problems who might not otherwise be able to attend summer camp.

Doctor Relocates

Dr. Dennis Davidson, who formerly practiced in Conway, has opened his office in Stephens for the practice of medicine.

Physicians Speak at Conference

Dr. Ronald Baldwin of Magnolia spoke on juvenile diabetes at a three day conference on diabetes which was held in El Dorado in June. Other speakers and their topics were Dr. James Cornett of Little Rock, "Obesity and Its Relation with Diabetes", and Dr. George Warren of Smackover, "Diabetes: Problems, Questions and Answers".

Doctors Named to Hospital Staff

Dr. Gilbert S. Campbell has been named chief of the medical staff at Little Rock's University Hospital for the next two years. Dr. William G. Reese was named president-elect of the hospital board.

New Heart Association Officers

Dr. R. A. Etherington of Eureka Springs was elected president of the Arkansas Heart Association at the Association's annual meeting in Little Rock. Dr. James K. Cornett of Little Rock was named president-elect; Dr. G. Doyne Williams of Little Rock was selected vice president. Dr. John Henderson of Searcy, Dr. John Stotts of Little Rock, Dr. Harrison Butler of Fayetteville, Dr. Malcolm Pearce of Pine Bluff, and Dr. Forney Holt of Texarkana were elected to the Board of Directors.

Doctor Locates in DeWitt

Dr. Kenneth E. Hall, formerly of Phoenix, Arizona, has opened his office at the DeWitt Clinic for the practice of medicine and surgery. Dr. Hall is a graduate of the University of Arkansas School of Medicine, class of 1944.

Amendment 58 Speakers Bureau

Dr. Robert Benafield of Little Rock and Dr. Jerome Luker of Dardanelle recently spoke to civic clubs regarding proposed Constitutional Amendment 58. Dr. Benafield spoke before the Conway Kiwanis Club and Dr. Luker spoke to the Dardanelle Chamber of Commerce.

Dr. Stalker Named Medical Director

Dr. James M. Stalker of Batesville has been named medical director of Intermed of Batesville, a 140-bed skilled care facility which opened there recently.

Doctor Opens Office

Dr. Charles E. Reaves has opened his office for the practice of dermatology at 1708 West 42nd Avenue in Pine Bluff.

Area Doctors Meet

Plans to develop a continuing education program for physicians who practice obstetrics and pediatrics in South Arkansas were discussed at a meeting at the Union Memorial Hospital in El Dorado. Physicians in attendance formed a group to meet monthly at Union Memorial for seminars to be conducted by specialists in obstetrics and neonatology from the University Medical Center in Little Rock and from medical centers outside the State. The education program is expected to continue for at least one year. Among physicians in attendance at the meeting were Drs. James Guthrie, Judson Hout, and Robert H. Nunnally of Camden; Drs. John Alexander, Ronald Baldwin, Jr., John Ruff, and Charles Weber of Magnolia; Drs. J. Schuler McKinney, Marvin J. Roesler, Henry B. Rogers, George W. Smith, and R. L. Turnbow of El Dorado.

Dr. Caplinger is Guest Speaker

Dr. Kelsy Caplinger of Little Rock, past president of the Arkansas Chapter of the Arkansas Arthritis Foundation, discussed the services offered by the Foundation at a meeting of the Little Rock Civitan Club.

Members' Articles Published

Articles entitled "Naloxone in the Parturient and Her Infant" by Dr. Richard B. Clark, Dr. David Barclay, et. al., and "Influence of Tidal Volume and Pulmonary Artery Occlusion on Arterial Oxygenation During Endobronchial Anesthesia" by Drs. Dola Thompson and Ray-

mond C. Read, et. al., were published in the May issue of the Southern Medical Journal.

Organization Selects New Officers

The following officers of the Arkansas-Oklahoma Endoscopic Society were chosen at the second annual meeting of the organization which was held June 11-13 at Western Hills Lodge in Sequoyah State Park, Oklahoma: Dr. Donald G. Browning of Little Rock, president; Dr. Thomas R. Treece of Tulsa, Oklahoma, vice president; Dr. Charles H. Paris of Fort Smith, secretary; Dr. Thomas J. Smith of Little Rock, Treasurer. New Councilors elected were Drs. Robert Butler of Pine Bluff, Clinton Texer of Little Rock, David Jenkins of Tulsa, Oklahoma, and Robert Ringrose of Guthrie, Oklahoma.

Dr. Johnson on Program

Dr. David Johnson spoke on "Doctors and Medicine" at the June meeting of the Arkansas Arthritis Foundation held in Searcy.



THINGS TO COME



Mammography Training for the Early Diagnosis of Breast Cancer

SPONSORS:

The University of Texas System Cancer Center M.D. Anderson Hospital and Tumor Institute, Houston, Texas; National Cancer Institute; American College of Radiology.

LOCATION:

Mammography Conference Room (Room 257, near second floor X-ray waiting room), Department of Diagnostic Radiology, M.D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, Texas.

FEE:

None.

DESIGNED FOR:

Radiologists, residents in radiology, radiologic technologists. Other physicians and interested

medical personnel may monitor the course on a space available basis.

ENROLLMENT:

Maximum of four physicians and four technologists per course. When possible, radiologists are encouraged to bring their mammography technologists for the same instruction period.

DURATION:

Five continuous days, Monday through Friday. Eight hours of instruction per day, 40 total course hours.

DATES:

The course will be offered the second or third week of each month, variations determined by conflicting national or local conventions, holidays, etc. Attempt will be made to schedule course dates several months in advance. Present course schedule includes weeks beginning on the following Mondays.

TIME:

Course begins at 8:00 A.M. on Monday morning of the assigned course date.

CREDIT:

Category I, AMA Physician's Recognition Award, American College of Radiology. Approved for ECE points by ASRT.

CURRICULUM:

Separate curriculum for radiologists and radiologic technologists. Curriculum and schedule may be individually modified to accommodate enrollee's previous experience and future needs.

CONDUCTED BY:

David D. Paulus, M.D., Mammography Training Director
Susan K. Sprinkle, R.T., Mammography Technical Coordinator

TEACHING METHODS:

Audiovisual materials, lectures, live clinic demonstrations, participation in routine patient examinations, introductory teaching sets, review of extensive proven case files in film mammography, xeroradiography and thermography, and daily round table discussions of problem cases.

APPLICATIONS:

Requests for a specific instruction period will

be accepted on a first come, first served basis and should include an alternate date in case the first course preference is filled. Applications are requested to include a brief description of previous experience in length of time and number of mammograms performed or interpreted (estimate number per week or month over a period of how long), and what the primary interest will be, i.e., film mammography, xeroradiography and/or thermography. This will enable us to better prepare individual schedules. Prompt notification of cancellation will be greatly appreciated.

ACCOMMODATIONS:

Numerous hotels and motels are located within a short walking distance or in the vicinity of the Medical Center, many providing free transportation to and from the various hospitals in the Center. We will be happy to assist in making desired accommodations. Visitors will be responsible for their own expenses. Shopping and tour information will be available for accompanying families.

CONTACT:

For further information or assistance please send inquiries to:

Dawn Nevling Shull, Project Coordinator
Department of Diagnostic Radiology
The University of Texas System Cancer Center
M.D. Anderson Hospital and Tumor Institute
6723 Bertner Drive
Houston, Texas 77030
Telephone (713) 792-2712

January 13, 14, 15, 1977

The second Mid-Winter Virgin Islands Clinical Conference will be held in St. Croix, January 13, 14, 15, 1977, by the U. S. Virgin Islands Medical Society in association with the Faculty of the University of Pennsylvania School of Medicine. The program is acceptable for 14 credit hours in Category I for the Physician's Recognition Award of the American Medical Association, and will include lectures and seminars of interest to the physician in General Practice, Internal Medicine, General Surgery, Ob-Gyn, and Pediatrics. For further information, write airmail to James S. Glenn, M.D., F.A.C.P., Chairman, U. S. Virgin Islands Medical Society, P. O. Box 520, Christiansted, St. Croix, U. S. Virgin Islands 00820.

September, 1976

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 73 No. 4

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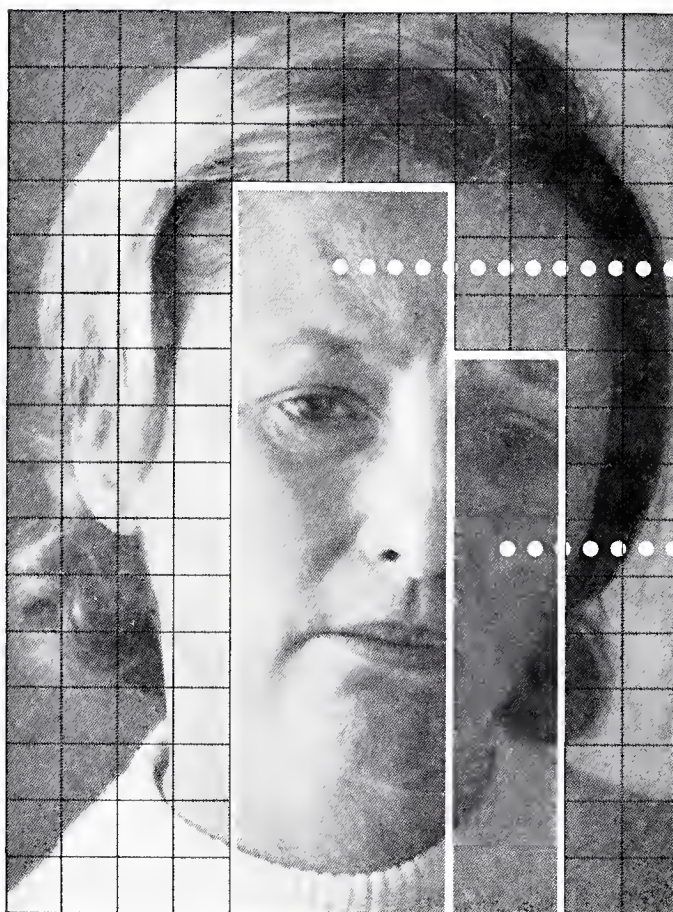
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Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor

neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive dis-

orders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anti-convulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful

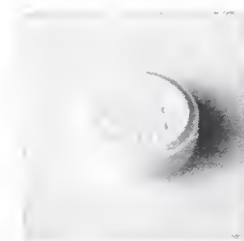
respond to one

According to her major symptoms, she is a psychoneurotic patient with severe anxiety. But according to the description she gives of her feelings, part of the problem may sound like depression. This is because her problem, although primarily one of excessive anxiety, is often accompanied by depressive symptomatology. Valium (diazepam) can provide relief for both—as the excessive anxiety is relieved, the depressive symptoms associated with it are also often relieved.

There are other advantages in using Valium for the management of psychoneurotic anxiety with secondary depressive symptoms: the psychotherapeutic effect of Valium is pronounced and rapid. This means that improvement is usually apparent

in the patient within a few days rather than in a week or two, although it may take longer in some patients. In addition, Valium (diazepam) is generally well tolerated; as with most CNS-acting agents, caution patients against hazardous occupations requiring complete mental alertness.

Also, because the psychoneurotic patient's symptoms are often intensified at bedtime, Valium can offer an additional benefit. An *h.s.* dose added to the *b.i.d.* or *t.i.d.* treatment regimen can relieve the excessive anxiety and associated depressive symptoms and thus encourage a more restful night's sleep.



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anxiety states
with associated
depressive symptoms

surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of child-bearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies.

Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle

spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



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Notice on Form 3579 to be sent to Arkansas Medical Society, P. O. Box 1208, Fort Smith, Arkansas 72901. Published monthly under direction of the Council, Arkansas Medical Society, Volume 73, No. 4. Subscription \$2.00 a year. Single copies 50 cents. Entered as second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

The Itch is Back

W. Mage Honeycutt, M.D., G. Thomas Jansen, M.D., Michael G. Keeran, M.D.,
Carl J. Raque, M.D., and Burton A. Moore, M.D.*

Only the older physicians in Arkansas will remember seeing any significant number of cases of scabies in their practice. Most physicians who have entered practice within the past 25 years will have had only limited, if any, experience with this infestation. We are now in the midst of an epidemic of scabies and it is important that we practicing physicians reacquaint ourselves with the disorder. The purpose of this paper is to review the cause, symptoms, diagnosis and treatment of scabies.

The last epidemic in the United States apparently was slightly before and during World War II and it gradually disappeared toward the end of that decade. In our experience with all types of pruritic disorders it was rare for us to see a case of scabies until about four or five years ago. However, at this time it is not unusual for us to see up to twenty cases in the office each week. This same situation is being experienced by other dermatologists over the United States.

Scabies has been known for centuries and its incidence in all parts of the world follows sharp cyclical fluctuations. The reason for this cyclical incidence is unknown, but it can be anticipated that mild to severe epidemics of this infestation will occur on about a fifteen year cycle. It would be logical to assume that the war time conditions during World War II contributed heavily to that particular epidemic but at least in European countries the incidence of scabies was already rising rapidly long before any hostilities broke out.

Scabies is an intensely pruritic disorder produced by infestation of the skin by a mite.

The Organism

Scabies is caused by a mite; *Sarcoptes scabiei* var *hominis*. The female mite measures .4 mm

by .3 mm in size and the male is much smaller. While it could be seen with the naked eye it is essentially a microscopic organism. When viewed under magnification the adult female has transverse corrugations on the body and fairly long brown hair-like bristles on the dorsal surface. There are four pairs of very short stubby legs. The juvenile forms, which are smaller, have only three pairs of legs.

After the female has gained access to the skin, she burrows into the stratum corneum and each day extends her burrow one or two millimeters. She lays three to four eggs daily for her life span.



Fig. 1.

Adult male patient with typical lesions of scabies.

*Authors' address: 500 South University Avenue, Little Rock, Arkansas 72205.



Fig. 2.

Heavily infested patient with the secondary eczematous reaction with excoriations.

about four to five weeks. The eggs hatch in three to four days and the larvae come to the skin surface, where they undergo three molts on the way to adulthood. This molting process requires about two weeks. Copulation then occurs, the males soon die and the gravid female burrows inward to repeat the life cycle. The longer the patient has the infestation, obviously, the more mites are present and the greater the symptomatology.

The *Sarcoptes* causing scabies in man and mange in other mammals are variants of a single species. The host specificity of *Sarcoptes scabiei* is not complete and it is said that the mites transmitted to human from dogs will live only a short period of time. However, humans infested with dog scabies present an almost indistinguishable picture from human scabies except for the usual absence of burrows. Although the infestation may be self-limited our experience has shown us that the infestation may last a long time un-



Fig. 3.

Typical palmar lesions and a secondarily infected burrow on the ring finger. Such lesions as these offer good location for finding organisms or eggs.

treated. The method of treatment for human and dog scabies is essentially the same.

Symptomatology

Scabies infestation is not nicknamed "the itch" without good reason. In heavily infested individuals the itching can be a terrifying experience. The degree of itching does not necessarily parallel the number of infesting mites, but may rather depend upon the degree of sensitization of the patient to the mites, ova and fecal material. The most highly suggestive type of itching is that which is mild and intermittent during the day but very severe and unrelenting at night, particularly right after retiring. Usually the longer the patient has the infestation the worse the itching.

One of the most valuable observations in such a patient is that no matter how severe the infestation and how extensive the eruption the scalp and face in adults remain uninvolved. The exact reason for this is not known but it is felt that the mite avoids areas high in sebaceous glands,



Fig. 4.

These red papules on the glans penis are almost diagnostic of scabies. Scrapings from these lesions offer the greatest possibility for identifying scabies.

such as the scalp and face. Infants and small children have very little sebaceous gland activity and therefore are quite likely to have involvement of their face and scalp.

With the exception of the face and scalp the entire body surface may be involved, including the palms and soles. When the infestation is very severe one cannot detect a patterning to the eruption which will make suspicioning scabies more difficult. However, most of the patients we see will have a suggestive, or even characteristic distribution of lesions. The areas most usually involved are the webs and sides of the fingers, the volar surface of the wrist, the palms and soles, elbows, anterior axillary folds and the buttocks. In females the nipples and areola are also very frequently involved, and in males the scrotum and glans penis are common sites. In fact, it is so common that if you see a male with a rash and pruritic red lesions on the glans he should be considered to have scabies until proved

otherwise. This was not so five or ten years ago, but at this time if your index of suspicion is not high enough many of these cases will be completely missed. Similarly, at this time, any young, active, single adult with an itching rash, not characteristic of some other disorder, should be strongly suspicioned to have scabies.

Scabies is acquired and transmitted to others through close body contact, not necessarily sexual but certainly an effective mode of transmission. Infants and children acquire scabies through contact with either their affected parents or from close contact with other affected children. It is thought that only the nymphs and adult mites can be transferred to others to produce an infestation. There is little doubt that contaminated articles such as bed sheets and clothing can be the cause of an occasional case of scabies but it is certainly not the usual method of acquisition. Family outbreaks are so common that all members of a family should be treated if one member is found to be infested. Otherwise, they may reinfect one another in the household.



Fig. 5.

Adult female *Sarcoptes scabiei* var *hominis* as seen on scanning lens of the microscope. Note the four pairs of short legs, the bristle-like hairs and round shape.

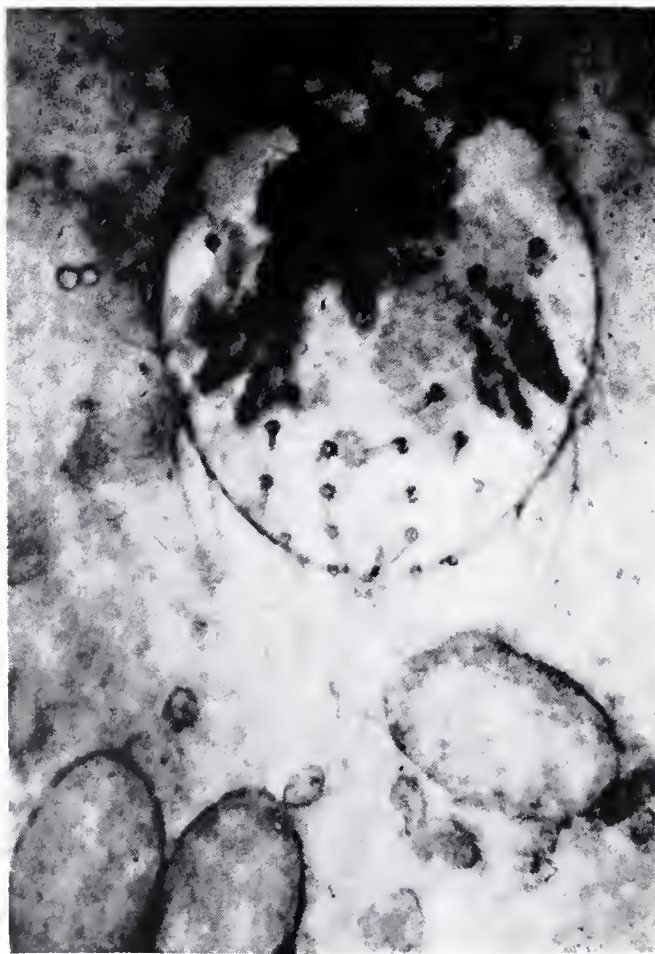


Fig. 6.

Medium power view of adult female mite with three eggs, showing the relatively large size of the ova compared to the adult.

If there is a skin lesion in scabies which is diagnostic it is the *burrow*. But like so many other medical clues it is frequently talked about but seldom seen. Because of the extreme pruritus the burrow is excoriated so soon after its development as to destroy its identity as such. The burrow is the tract of the female mite and can be seen as a linear, erythematous, slightly elevated, blister-like lesion 2 to 5 millimeters long by 1 to 2 millimeters wide. The best area of the skin to find these burrows is on the sides of the fingers or the interdigital webs. More likely to be seen than the typical burrow, however, is a small blister located in the interdigital space, or perhaps a resolving blister with some crusting on its surface. One of the confusing things about diagnosing scabies is that after the infestation has become rather heavy other types of lesions soon appear. There can be pustules from secondary infection and more particularly small erythematous and eczematous papules developing densely over the body. This represents a secondary eczematous eruption from irritation,

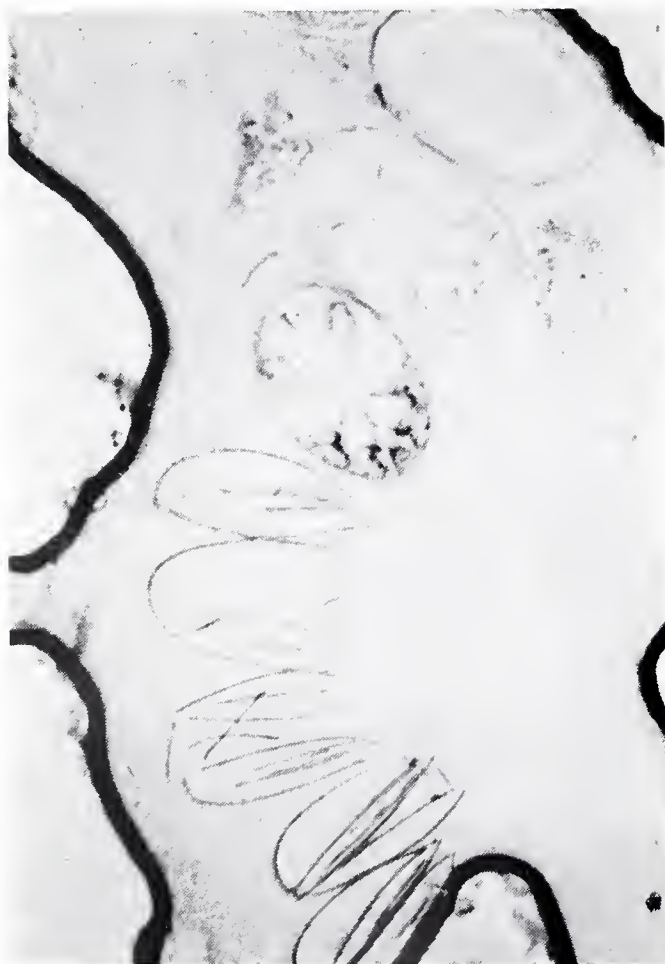


Fig. 7.

Low power view of the contents of a burrow. The ova in the lower portion have already hatched and are in a collapsed state. The third ovum from the top contains a fully developed embryo ready for hatching, while the remaining two are less well developed at this stage.

infection and sensitization and clouds the clinical picture considerably. We have seen this phenomenon most commonly on the trunk, particularly on the waistline and lower abdomen. Of course, these lesions are devoid of mites and ova and will not yield positive results on scrapings for diagnosis.

Diagnosis

It is fair to say that the diagnosis of scabies is made most often by the clinical appearance of the patient, the history of a similar affliction in other members of the family or sexual partner, the typical worsening of itching at night, and the clinician's own high index of suspicion. Demonstrating the mite, or ova, in scrapings from the lesion is indisputable evidence of the disease, but even in the hands of experts such specific findings can be noted only in about half the patients.

The technique of finding the mites or ova is quick and simple. The best areas from which to obtain the material for microscopic examination are the webs of the fingers, sides of the fingers or toes, palms, nipples, pubic region and penis. These areas harbor the most organisms and are less likely to be involved with non-specific eczematous changes. Ideally a non-excoriated intact blister, burrow or papule should be sought out for scraping. A sharp scalpel is used to slice off the surface of the lesion and then to scrape the moist base thoroughly. The material is transferred then to the surface of a glass slide, covered with a drop of 20% potassium hydroxide and allowed to digest for a few minutes. The slide should be examined under the scanning power or the low power of the microscope as the mites and ova are extremely large and are quite easily visualized at this power. It is best to scrape as many of the blister-like lesions as can be seen in order to increase the chances of a positive diagnosis.

As noted above, the mites or ova can only be found in about 50% of the cases and therefore a trial of therapy can be given as a diagnostic procedure in those cases which are still in doubt. If clearing of the eruption and cessation of the itching occurs within a week of treatment it can be assumed that the patient did have scabies.

Treatment

Many of the older physicians will remember the good old days of scabies therapy with 20% sulfur ointment. This treatment was extremely foul and fortunately is no longer necessary. The same bed linens and pajamas were worn throughout the entire length of treatment which required about 10 days and if the greasy environment did not get you, the stench would.

Treatment can be carried out now in 24 hours without much difficulty. The patient is instructed to take a hot soapy bath one evening and then apply the scabicide from the neck to the toes, not missing any areas. In adults it is not necessary to treat the face and scalp. The medication is left on for 24 hours at which time another soap and water bath is taken. This routine should be repeated in four to seven days but further applications are probably worthless, and might even cause primary irritation and aggravation of the pruritus. The newer scabicides are effective not only for the eradication

of the mature mites but also for the nymphs and ova. It is a good practice to launder all underclothing and bed linens at the same time the scabicide is applied but re-infestation from these sources is not very likely.

The most commonly used scabicide is gamma benzene hexachloride (Kwell®) which is available in a 1% cream and a lotion. It comes in 2 and 16 ounce sizes, the former being adequate to treat one adult while the latter may be ordered for a large family group.

Ten per cent crotonotoluide (Eurax®) cream is equally effective. Less desirable, but effective, is an emulsion containing 12% benzyl benzoate, 2% benzoin and one percent DDT (Topicide®). All are used in a similar fashion. In eczematized, heavily infested patients we frequently administer systemic antipruritics and even corticosteroids. Prednisone in a dose of 20 mg. daily will markedly hasten the resolution of the lesions and the pruritus.



The Masauki Hara Lecture**

"The Current Status of Renal Transplantation"

John S. Najarian*

I will discuss some common aspects of organ transplantation which are now commonplace, review what has transpired in this field of medicine, particularly kidney transplant, and identify the features of transplantation that keep one interested, so it does not become a mechanical event of suturing kidneys in place.

Currently, our group in Minnesota has performed over 700 kidney transplants. The standard operative techniques and immunosuppressive regimen have been previously described. Briefly, the technical approach utilizes an extraperitoneal groin incision exposing the iliac artery and vein. The renal artery and vein are anastomosed to the iliac vessels. Ureteroneocystostomy has been the procedure of choice for urinary drainage. All patients had bilateral nephrectomy and splenectomy prior to transplantation. The postoperative immunosuppressive regimen consists of azathioprine (5 mg/kg/day) begun on the day of surgery and tapered to maintenance level of 2.0-2.5 mg/kg/day; prednisone begun at 2.0 mg/kg/day and tapered to maintenance levels of 0.25-0.33 mg/kg/day. Beginning on the first postoperative day, 30 mg/kg/day of antilymphoblast globulin (ALG) is given for 14 days with each dose dependent upon daily platelet counts. Goat ALG is used with second transplants even though sensitization to horse ALG is not demonstrable in the vast majority of patients. The above immunosuppressive regimen is used on all patients except HLA identical sibling transplants in which initial prednisone doses of 1 mg/kg/day and ALG doses of 20 mg/kg/day are used. The kidney is irradiated (150 rads) on the first, third, and fifth postoperative days except in HLA identical sibling recipients.

Data from the American College of Surgeons Transplant Registry reveal a five-year cumulative graft survival of 60 percent in living related transplants. We have achieved a five-year cumulative graft survival of 85 percent. When one combines the parent-to-child and child-to-parent

groups (genetically identical groups), the registry reported a five-year cumulative graft survival of 50 percent with our results being 75 percent.

The next item of particular interest is cadaveric transplants. Nationally, approximately two-thirds of all renal transplants are performed with cadaver donors. In our series, approximately 60 percent of transplants are from cadaver donors. Cadaveric transplantation involves the greatest genetic disparity. The (registry) five-year cumulative graft survival in cadaveric transplantation is approximately 30-35 percent. We have achieved a 60 percent five-year cumulative survival among cadaveric transplants. These results are obtained in cadaver transplantation disregarding HLA tissue typing. As a matter of fact, we have not been able to demonstrate any influence of HLA tissue typing on the outcome of cadaver grafts. We attribute the superior results in our patients compared to the patients from the registry to our somewhat different postoperative immunosuppressive regimen. An important fact is that the figures cited above are in normal risk patients, that is, patients between the ages of 15 and 45 years of age without complicating factors other than chronic renal failure. In summary, the cumulative graft survival exceeds 60 percent for cadaver donors, 75 percent for parent-to-child and child-to-parent transplants, and 85 percent for sibling transplants.

What is the outcome when failure of the graft occurs and removal is necessary? In those patients, retransplantation gives good results. However, there is approximately a 10 percent patient attrition rate with each sequential transplant. This loss is much greater when retransplantation occurs with cadaver grafts. When a patient sustains episodes of acute graft rejection, we make three attempts to reverse the acute episodes by increasing the steroid regimen. If these fail, we taper the immunosuppression drugs rapidly and remove the graft. Retransplantation can be carried out safely at a later date. Because of the increased graft loss and patient mortality utilizing cadaver grafts with retransplantation,

*Professor and Chairman of the Department of Surgery, University of Minnesota Health Science Center, Box 195, Mayo Memorial Building, Minneapolis, Minn. 55455.

**Presented March 20, 1975, University of Arkansas for Medical Sciences.

we much prefer to retransplant using living related donors. Appropriately at this time, one has to be reminded that the dialysis mortality is approximately 10 percent per year leveling off at around 50 percent in five years.

As mentioned above, the previous statistics were in the ideal risk patients. We shall now review groups of patients with a less favorable outlook. Experience has demonstrated that cadaveric transplantation in patients over 45 years old yields poor results. In our series the two-year cumulative graft survival in these patients has been approximately 40 percent with a slightly higher patient survival. These figures approximate those obtained with chronic hemodialysis. However, age is not such a detriment with living related transplants. The cumulative graft survival in patients over 45 years of age with living related transplants is approximately 80 percent, which is slightly less than that achieved in the ideal age group.

Small children are another high risk group of patients. We have now transplanted approximately 140 children under the age of 16 years. This is the largest group of pediatric transplants in the world. Our four-year cumulative patient survival with related transplants was 80 percent and 40 percent with cadaveric transplants. In 1973, we analyzed our ten-year patient survival in children. At that time, we had transplanted 98 children. Of this group, 76 had normal renal function and 22 patients had died. One of the most difficult problems with small children is the difficulty of hemodialysis because of vascular access. Dr. Kjellstrand and Dr. Buselmeier in our institution, after much perseverance, began dialyzing small children (even newborns). However, it was often necessary for the dialysis cannulas to be placed in the groin which frequently became infected. Because of this problem, cannulas were placed in the upper arm in small children. This could be accomplished in children as small as 3 kg. Children weighing over 15 kg can readily have an internal arteriovenous fistula placed. With these refinements vascular access and hemodialysis in children is no longer a major problem. Newborn children can be dialyzed via the umbilical artery and vein, undergo a procedure as mentioned above, and be maintained on hemodialysis until suitable for transplantation. The renal diseases of children that

necessitate transplantation are similar to those of adults. Specifically, the most common is chronic glomerulonephritis followed by pyelonephritis which is usually due to reflux. Bladder neck obstructions can be corrected prior to transplantation.

A somewhat unique problem presented by children with congenital nephrotic syndrome is their small size. This disease, of course, is present from birth and patients usually become severely uremic around the age of 12-18 months. These are the smallest children that we have transplanted. Almost uniformly we have transplanted these children with grafts from mothers using a transperitoneal approach. It does present somewhat of a technical problem in placing these large kidneys in infants. However, it can be accomplished and the overall success in this unique group of patients has been good. There are two reasons for utilizing the mother as the donor: (1) mothers have smaller kidneys than fathers (however, a female sibling would likewise be suitable), (2) children have a more active immune response than adults and despite large doses of immunosuppression, cadaveric grafts have been rejected in the majority of cases. Furthermore, with less rejection the amount of steroids can be reduced, allowing for better growth. Rarely in this group of patients, when no living related donor is available, we have utilized pediatric cadaver donors in which both kidneys are removed en bloc, and transplanted as such with the proximal aorta oversewn and the distal aorta sutured to the recipient aorta. The vena cava likewise is sutured to the recipient iliac vein or vena cava. Unfortunately in the small number of patients that we have utilized this technique, we have not had a high success rate. Again due to the active immune response these grafts have been rapidly rejected. We have, however, utilized pediatric cadaver kidneys en bloc in adults with success.

A very important aspect of pediatric transplantation is growth. Moderate uremia in children markedly curtails growth and dialysis does not usually alleviate this problem. Normal growth has been observed following renal transplantation. However, very rarely does one observe "catch up" growth. As a result, we have transplanted some children (serum creatinine 5-6mg%) before end stage renal failure occurs

so growth is not as retarded and the patient does not become a renal dwarf. Most growth occurs prior to the age of 10 years. Therefore, when a uremic child approaches this age, we strongly recommend transplantation.

An important adjunct to our post-op immunosuppression regimen that was instituted in 1968 was the use of heterologous anti-lymphoblast globulin (ALG). Prior to this era and the institution of ALG, our renal transplantation results in adults and children were markedly inferior to our current results. We feel the use of ALG in children is mandatory due to their more active immune response. The use of ALG allows us to taper steroids more rapidly. The child becomes less cushingoid and the growth takes place more readily.

Death in children from sepsis is far less common than in adults. Also children withstand prolonged high doses of immunosuppression better than adults. In essence, children are very resilient and probably are not high risks at all. This is not true, of course, of the infant with congenital nephrotic syndrome that presents technical problems. In summary, the cumulative 10-year graft survival among our pediatric transplants is about 70 percent in related grafts and 45 percent with cadaveric grafts.

Patients with diabetes mellitus represent a unique group of patients with special problems. As a whole, diabetic patients present so many problems that few dialysis and transplant centers have offered any form of treatment to these patients. A few of these problems include severe atherosclerosis and difficult vascular access for hemodialysis, episodes of hyperglycemia causing fluid overload and pulmonary edema requiring dialysis, and frequent infections. Furthermore, a high portion of juvenile patients are blind when renal failure is severe enough to justify dialysis or transplantation. In 1970, with the above problems in mind and with the dismal outlook these people presented, we undertook a large program to dialyze and transplant diabetic patients. From 1970 to 1974 we have done 89 diabetic transplants. The mean age is 33. The mean duration of the diabetic state is 20 years before renal failure necessitating dialysis or transplantation occurs. One-fifth of our patients were totally blind and 40 percent had marked

visual impairment. Of the 89 patients transplanted, 62 are living and well but four patients have returned to chronic hemodialysis. Twenty-three patients died and five patients received second transplants. In regard to diabetic blindness and retinopathy, we have observed that the major visual loss occurred during the terminal phases of uremia, (the two-year period prior to dialysis). For this reason and other factors that tend to make diabetic patients somewhat unstable, we began transplanting diabetic patients when the serum creatinine approached 6 mgs.%. We observed that patients with good eyesight prior to transplantation stabilized and maintained their vision in the post-transplantation period. Of patients with severe retinal and visual impairment prior to transplantation, some patients improved but the majority of patients did not improve appreciably. At the initiation of transplanting diabetic patients, we performed serial biopsies of all transplanted kidneys. The primary reason for these biopsies was to sequentially study transplanted kidneys to ascertain if recurrent diabetic nephropathy occurred. Indeed, at the end of five years, thickening of the basement membranes and nodular changes along the basement membranes suggest early recurrence of diabetic nephropathy. The significance of these changes and the extreme long term outcome of the transplanted kidney in the diabetic patient is unknown at the present time. Laboratory work from our institution has revealed that in experimental animals (rats), recurrence of the original diabetic nephropathy occurs in the transplanted kidney. Furthermore, with detailed electron microscopic data from these animals, recurrent lesions have been seen as early as 12 months post-transplant.

The social worker at our institution recently reviewed our series of diabetic transplant patients with regard to rehabilitation. We found that 51 percent were employed, 12 percent were students, 12 percent were in the transition stage and planned to work, and only 25 percent were functionally unable to work. In summary, the five-year cumulative graft survival in diabetic patients is around 70 percent using living related donors and approximately 60 percent with cadaveric donors. However, the majority of our diabetic patients is around 70 percent using living related donors. The cadaver statistics are

somewhat small in number and may not be a true reflection of diabetic cadaver transplantation.

Instead of simply trying to alleviate the end organ failure, namely renal failure in diabetic patients, we have also studied the basic disease in these patients, namely the defect in insulin and carbohydrate metabolism. Experimentally in the laboratory, we have been able to successfully transplant islet cell suspensions by direct injection into the portal vein. Other investigators have likewise successfully transplanted islet cell suspensions experimentally. With this background, we began performing human islet cell transplants via the portal vein. We have done approximately 10 human islet cell transplants with very limited success. The current main problem with human islet cell transplants is harvesting and processing the islet cells. Presently we can only achieve approximately 5-10% yield of islet cells from a normal pancreas. Hopefully, however, in the near future with further refinements in the area of islet cell harvesting a better yield will be obtained and success in human islet cell transplantation will be accomplished.

Renal transplantation, especially cadaveric, has to depend on organ preservation. The pioneering work of Folkert Belzer using cold pulsatile perfusion in the 1960's and later refinements by ourselves and other laboratories have allowed us to preserve kidneys for as long as 72 hours. However, utilizing cold pulsatile preservation, the time vs. graft non-function curve is almost linear. Based on this, there is a significant rate of non-functioning grafts beyond 48 hours, as a result, we seldom preserve and utilize organs beyond this time period.

Cold non-pulsatile preservation utilizing a slightly hyperosmolar solution with its chemical composition being near to that of intracellular fluid, has been utilized successfully for up to 48 hours. We have not used this type of preservation.

The University of Minnesota organ procurement system has a constantly available donor harvesting team. This consists of surgeons, technicians and portable preservation machines that are available at a moment's notice to travel to various hospitals both short and long distances from the University of Minnesota Hospitals.

Utilizing this approach, the organ procurement volume at the University of Minnesota Hospitals has quadrupled in size during the past few years. Recently in our laboratory, we have developed a mini preservation machine that is approximately the size of an attache case that can preserve a single kidney and is more readily transportable.

Organ preservation has also allowed surgeons the opportunity to exploit "bench surgery." With this approach, successful correction of renal vascular lesions at the secondary and tertiary level can be accomplished. The affected kidney is explored, removed from the patient, cryo-preserved, operated upon with no concern for ischemic time and then reimplanted. In some instances of ex-vivo cryo-preservation, the ureter need not be severed thus eliminating the possible complications of re-implanting the ureter.

Utilizing "workbench surgery" we, as well as other investigators, have operated upon and salvaged kidneys that otherwise would have had to be removed. A somewhat different example utilizing organ preservation will be illustrated by a brief case presentation. This 61-year-old severely hypertensive male had a 20 cm. aortic abdominal aneurysm. Upon examination of the patient and also by arteriography it was evident that the aneurysm extended above the renal arteries. Aortography revealed complete occlusion of the right renal artery and approximately an 80 percent stenosis of the left renal artery. The patient electively underwent surgery where first the left kidney was dissected, removed, and placed on the preservation machine for approximately four hours during which time resection and dacron graft replacement of the abdominal aorta were performed. The kidney was nicely protected from the sequelae of blood pressure and volume changes during resection of the aneurysm. Upon completion of this the kidney was taken from the preservation machine and placed in the right groin utilizing the same approach as in doing a routine kidney transplant. Postoperatively the patient convalesced well and had normal renal function. In this particular case the kidney per se was not operated upon, but it does illustrate another example of how preservation can be effectively utilized.

Briefly, organ transplantation other than renal and corneal has met with limited success. Even so, this success is made by specialized centers that

continue to have interest in specific organs. For example, the University of Colorado is the largest and most active group performing liver transplants. Approximately 24 liver transplants per year are transplanted at that center. The one- and two-year patient survivals are 50 percent and 30 percent respectively. The best success is achieved in patients with biliary atresia. Hepatomas have had a prohibitive recurrence rate. There are currently no long term survivors in patients with alcoholic cirrhosis. The above statements are similarly true for heart and lung transplants.

In summary, organ transplantation other than renal transplantation, namely heart, liver, and lung are performed only by few select centers that can achieve some overall success. There is much room for improvement; this area of trans-

plantation is still highly experimental and more basic information is needed before these organs can be readily successfully transplanted. In sharp contrast approximately 20,000 kidney transplants have been performed up to date which demonstrates the wide applicability of renal transplantation.

In essence, we feel like the field of transplantation is still a very challenging and interesting field. It has the best combination and a variety of clinical and basic science disciplines all put together — immunology, microbiology, infectious disease, urology, general surgery, vascular surgery, etc. As time goes on, I think, in transplantation they will find a new meaning to that excellent Latin saying, "Nemo Cibi Nascuteur" — "No one is born for himself alone."



Syphilis—CDC Recommended Treatment Schedules, 1976*

The following recommendations were established by the Venereal Disease Control Advisory Committee** after deliberation with therapy experts.***

Few data have been published on the treatment of syphilis since CDC revised these recommendations in 1968. Penicillin continues to be the drug of choice for all stages of syphilis. Every effort should be made to document penicillin allergy before choosing other antibiotics because these antibiotics have been studied less extensively than penicillin. Physicians are cautioned to use no less than the recommended dosages of antibiotics.

EARLY SYPHILIS (primary, secondary, latent syphilis of less than 1 year's duration)

- (1) Benzathine penicillin G—2.4 million units total by intramuscular injection at a single session. *Benzathine penicillin G is the drug of choice because it provides effective treatment in a single visit.†* OR
- (2) Aqueous procaine penicillin G—4.8 million units total: 600,000 units by intramuscular injection daily for 8 days. OR
- (3) Procaine penicillin G in oil with 2% aluminum monostearate (PAM)—4.8 million units total by intramuscular injection: 2.4 million units at first visit, and 1.2 million units at each of 2 subsequent visits 3 days apart. *Although PAM is used in other countries, it is no longer available in the United States.*

Patients who are allergic to penicillin:

- (1) Tetracycline hydrochloride††—500 mg 4 times a day by mouth for 15 days. OR

- (2) Erythromycin (stearate, ethylsuccinate or base)—500 mg 4 times a day by mouth for 15 days.

These antibiotics appear to be effective but have been evaluated less extensively than penicillin.

SYPHILIS OF MORE THAN 1 YEAR'S DURATION (latent syphilis of indeterminate or more than 1 year's duration, cardiovascular, late benign, neurosyphilis)

- (1) Benzathine penicillin G—7.2 million units total: 2.4 million units by intramuscular injection weekly for 3 successive weeks. OR
- (2) Aqueous procaine penicillin G—9.0 million units total: 600,000 units by intramuscular injection daily for 15 days.

The optimal treatment schedules for syphilis of greater than 1 year's duration have been less well established than schedules for early syphilis. In general, syphilis of longer duration requires higher-dose therapy. Although therapy is recommended for established cardiovascular syphilis, there is little evidence that antibiotics reverse the pathology associated with this disease.

Cerebrospinal fluid (CSF) examination is mandatory in patients with suspected, symptomatic neurosyphilis. This examination is also desirable in other patients with syphilis of greater than 1 year's duration to exclude asymptomatic neurosyphilis.

Published studies show that a total dose of 6.0-9.0 million units of penicillin G results in a satisfactory clinical response in approximately 90% of patients with neurosyphilis. There is more published clinical experience with short-acting penicillin preparation than with benzathine penicillin G. Some clinicians prefer to hospitalize patients with neurosyphilis, particularly if the patient is symptomatic or has not responded to initial therapy. In these instances they treat patients with 12-24 million units of aqueous crystalline penicillin G given intravenously each day (2-4 million units every 4 hours) for 10 days.

Patients who are allergic to penicillin:

- (1) Tetracycline hydrochloride—500 mg 4 times a day by mouth for 30 days. OR
- (2) Erythromycin (stearate, ethylsuccinate or

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†Italics indicates commentary.

††Food and some dairy products interfere with absorption. Oral forms of tetracycline should be given 1 hour before or 2 hours after meals.

base) — 500 mg 4 times a day by mouth for 30 days.

There are NO published clinical data which adequately document the efficacy of drugs other than penicillin for syphilis of more than 1 year's duration. Cerebrospinal fluid examinations are highly recommended before therapy with these regimens.

SYPHILIS IN PREGNANCY

Evaluation of Pregnant Women

All pregnant women should have a nontreponemal serologic test for syphilis, such as the VDRL or RPR test, at the time of the first prenatal visit. The treponemal tests such as the FTA-ABS test should not be used for routine screening. In women suspected of being at high risk for syphilis, a second nontreponemal test should be performed during the third trimester. Seroreactive patients should be expeditiously evaluated. This evaluation should include a history and physical examination, as well as a quantitative nontreponemal test and a confirmatory treponemal test.

If the FTA-ABS test is nonreactive and there is

no clinical evidence of syphilis, treatment may be withheld. Both the quantitative nontreponemal test and the confirmatory test should be repeated within 4 weeks. If there is clinical or serologic evidence of syphilis or if the diagnosis of syphilis cannot be excluded with reasonable certainty, the patient should be treated as outlined below.

Patients for whom there is documentation of adequate treatment for syphilis in the past need not be retreated unless there is clinical or serologic evidence of reinfection such as darkfield-positive lesions or a 4-fold titer rise of a quantitative nontreponemal test.

A. For patients at all stages of pregnancy who are not allergic to penicillin: Penicillin in dosage schedules appropriate for the stage of syphilis as recommended for the treatment of nonpregnant patients.

B. For patients of all stages of pregnancy who are allergic to penicillin: Erythromycin (stearate, ethylsuccinate or base) in dosage schedules appropriate for the stage of syphilis, as recommended for the treatment of non-

Table I. Summary—Cases of Specified Notifiable Diseases: United States

[Cumulative totals include revised and delayed reports through previous weeks]

DISEASE	13th WEEK ENDING		MEDIAN 1971-1975	CUMULATIVE, FIRST 13 WEEKS		
	April 3, 1976	March 29, 1975		April 3, 1976	March 29, 1975	MEDIAN 1971-1975
Aseptic meningitis	34	41	32	467	458	458
Brucellosis	1	4	40	52	35	26
Chickenpox	5,481	4,566	---	70,985	53,010	---
Diphtheria	1	12	4	85	121	51
Encephalitis	Primary	16	15	195	155	218
	Post-Infectious	10	15	62	63	60
Hepatitis, Viral	Type B	270	166	3,495	2,622	2,421
	Type A	676	667	9,020	9,026	---
	Type unspecified	193	183	2,193	1,927	12,800
Malaria	4	3	4	78	68	68
Measles (rubeola)	1,494	782	1,178	11,335	6,308	9,191
Meningococcal infections, total		24	50	524	448	448
	Civilian	40	47	520	435	435
	Military	—	2	4	13	14
Mumps	1,376	1,573	2,068	16,505	19,593	25,299
Pertussis	24	16	---	277	293	---
Rubella (German measles)	490	619	954	4,403	4,263	8,747
Tetanus	—	2	2	7	15	15
Tuberculosis	730	579	---	7,926	7,241	---
Tularemia	1	2	2	28	12	25
Typhoid fever	7	6	6	83	62	65
Typhus, tick-borne (Rky. Mt. spotted fever)	3	1	1	8	12	12
Venereal Diseases:						
Gonorrhea	Civilian	17,427	17,821	---	240,719	230,381
	Military	465	602	---	7,349	7,481
Syphilis, primary and secondary	Civilian	482	462	---	6,620	6,480
	Military	15	6	---	98	86
Rabies in animals	68	53	107	512	496	823

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	2	Poliomyelitis, total:	3
Botulism:	5	Paralytic:	3
Congenital rubella syndrome:	7	Psittacosis: Calif. 1	21
Leprosy: Missouri 1, Tex. 2, Calif. 3, Hawaii 5	36	Rabies in man:	—
Leptospirosis: Tex. 1	11	Trichinosis:	40
Plague:	1	Typhus, murine: Tex. 7	5

*Delayed report: Alaska 5 (1975)

pregnant patients. Although these erythromycin schedules appear safe for mother and fetus, their efficacy is not well established. Therefore, the documentation of penicillin allergy is particularly important before treating a pregnant woman with erythromycin. *Erythromycin estolate and tetracycline are not recommended for syphilitic infections in pregnant women because of potential adverse effects on mother and fetus.*

Follow-up

Pregnant women who have been treated for syphilis should have monthly quantitative nontreponemal serologic tests for the remainder of the current pregnancy. Women who show a 4-fold rise in titer should be retreated. After delivery, follow-up is as outlined for nonpregnant patients.

CONGENITAL SYPHILIS

Congenital syphilis may occur if the mother has syphilis during pregnancy. If the mother has received adequate penicillin treatment during pregnancy, the risk to the infant is minimal. However, all infants should be examined carefully at birth and at frequent intervals thereafter until nontreponemal serologic tests are negative.

Infected infants are frequently asymptomatic at birth and may be seronegative if the maternal infection occurred late in gestation. Infants should be treated at birth if maternal treatment was inadequate, unknown, with drugs other than penicillin, or if inadequate follow-up of the infant cannot be ensured.

Infants with congenital syphilis should have a CSF examination before treatment.

Infants with abnormal CSF:

- (1) Aqueous crystalline penicillin G, 50,000 units/kg intramuscularly or intravenously daily in 2 divided doses for a minimum of 10 days. OR
- (2) Aqueous procaine penicillin G, 50,000 units/kg intramuscularly daily for a minimum of 10 days.

Infants with normal CSF:

Benzathine penicillin G, 50,000 units/kg intramuscularly in a single dose. *Although benzathine penicillin has been previously recommended and widely used, published clinical data on its efficacy in congenital neurosyphilis are lacking. If neurosyphilis cannot be excluded, the procaine or aqueous penicillin regimens are recommended. Since cerebrospinal fluid concentrations of peni-*

cillin achieved after benzathine penicillin are minimal to nonexistent, these revised recommendations seem more conservative and appropriate until clinical data on the efficacy of benzathine penicillin can be accumulated. Other antibiotics are not recommended for neonatal congenital syphilis.

Penicillin therapy for congenital syphilis after the neonatal period should be with the same dosages used for neonatal congenital syphilis. For larger children the total dose of penicillin need not exceed the dosage used in adult syphilis of more than 1 year's duration. After the neonatal period, the dosage of erythromycin and tetracycline for congenital syphilitics who are allergic to penicillin should be individualized but need not exceed dosages used in adult syphilis of more than 1 year's duration. Tetracycline should not be given to children less than 8 years of age.

FOLLOW-UP AND RETREATMENT

All patients with early syphilis and congenital syphilis should be encouraged to return for repeat quantitative nontreponemal tests 3, 6, and 12 months after treatment. Patients with syphilis of more than 1 year's duration should also have a repeat serologic test 24 months after treatment. Careful follow-up serologic testing is particularly important in patients treated with antibiotics other than penicillin. Examination of CSF should be planned as part of the last follow-up visit after treatment with alternative antibiotics.

All patients with neurosyphilis must be carefully followed with serologic testing for at least 3 years. In addition, follow-up of these patients should include clinical reevaluation at 6-month intervals and repeat CSF examinations, particularly in patients treated with alternative antibiotics.

The possibility of reinfection should always be considered when retreating patients with early syphilis. A CSF examination should be performed before retreatment unless reinfection and a diagnosis of early syphilis can be established.

Retreatment should be considered when:

- (1) Clinical signs or symptoms of syphilis persist or recur;
- (2) There is a sustained 4-fold increase in the titer of an nontreponemal test;
- (3) An initially high-titer nontreponemal test fails to show a 4-fold decrease within a year.

Patients should be retreated with the schedules recommended for syphilis of more than 1 year's duration. In general, only 1 retreatment course is indicated because patients may maintain stable, low titers of nontreponemal tests or have irreversible anatomical damage.

EPIDEMIOLOGIC TREATMENT

Patients who have been exposed to infectious syphilis within the preceding 3 months and other patients who on epidemiologic grounds are at high risk for syphilis should be treated as for early syphilis. Every effort should be made to establish a diagnosis in these cases.

Reported by Venereal Disease Control Division, Bureau of State Services, CDC.

International Notes

Quarantine Measures — U. S. Designated Yellow Fever Vaccination Centers

The following changes should be made in the listing of U. S. Designated Yellow Fever Vaccination Centers included in the Supplement—*Health Information for International Travel*, MMWR, Vol. 24, December 1975:

ALASKA

Anchorage: Greater Anchorage Area Borough, change name to: Municipality of Anchorage Dept. of Health and Environmental Protection.

CALIFORNIA

Fresno: County Dept. of Health, change address to: P. O. Box 11867, change zip code to: 93775 (from 515 South Cedar Ave. 93702), change no fee charged to: fee charged.

Napa: County Health Dept., change telephone number to: 707-253-4161.

Sacramento: South City Health Center, change telephone number to: 916-440-6298.

San Francisco: Medical Clinic, San Francisco International Airport 94128, change clinic hours to: Monday-Sunday, 24 hour facility.

West Covina: Community Health Projects, Inc., change address to: 120 North Lang Ave. 91790.

Colorado Springs: El Paso City-County Health Dept., change telephone number to: 303-475-8240, Ext. 268.

CONNECTICUT

New Haven: Health Dept., change clinic hours to: By appointment, Thursday, 2-3 p.m., change no fee charged to: fee charged.

DELAWARE

Wilmington: Hercules Inc., change clinic hours to: third Friday, each month, 1:30 p.m.

DISTRICT OF COLUMBIA

Howard University Hospital, change zip code to: 20060.

FLORIDA

Fort Myers: Lee County Health Dept. 33905, change zip code to: 33902, change clinic hours to: second and fourth Thursday, each month, 2-3 p.m., change fee charged to: no fee charged.

IDAHO

Pocatello: Southeastern District Health Dept., change

telephone ext. to: 291.

IOWA

Des Moines: Des Moines-Polk County Health Dept. 50309, add to clinic hours: By appointment.

KANSAS

Leavenworth: City-County Health Dept., change clinic hours to: Monday, 2-4 p.m.

MASSACHUSETTS

Amherst: University Health Services, change telephone number to: 617-549-2671.

MICHIGAN

Lansing: Ingham County Health Dept., change clinic hours to: Friday, 9:30-11:30 a.m.

MONTANA

Missoula: City-County Health Dept., change address to: 301 Alder Street (from 301 Courthouse Annex).

NEW YORK

White Plains: Westchester County Dept. of Public Health, add to name: White Plains District Office, change address to: 85 Court Street 10601, change telephone number to: 914-682-2513, change clinic hours to: first and third Wednesday, each month, 1:30 p.m.

OHIO

Canton: City Health Dept., add to clinic hours: By appointment.

TENNESSEE

Memphis: Memphis-Shelby County Health Dept. 38105, change clinic hours to: Tuesday, 1:30-2:30 p.m.

Current Trends

Influenza — United States

Influenza activity continued to decline according to a CDC telephone survey conducted April 1. Three states reported no cases, and 34 states, Puerto Rico, and the District of Columbia reported isolated cases. The remaining 13 states reported regional outbreaks; widespread outbreaks ceased (Figure 1).

Pneumonia and influenza (P and I) deaths from 121 cities also continued to decrease, although mortality remained significantly above the epidemic threshold. The greatest decreases in P and I mortality were seen in the Pacific and Mountain region, while slight increases were noted in the West North Central and South Atlantic regions.

Reported by Viral Disease Division, Bureau of Epidemiology, CDC.

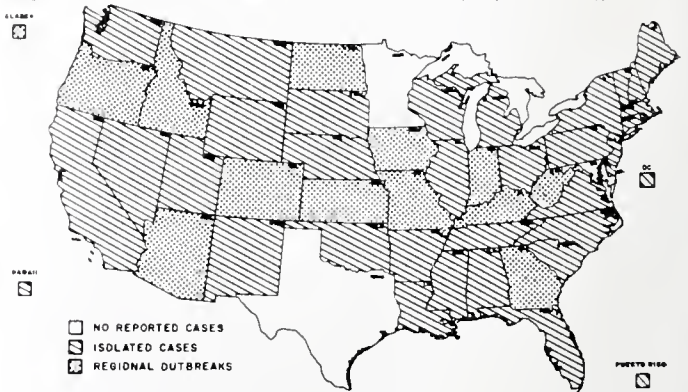


Fig. 1.
Reported influenza activity, April 1, 1976, CDC telephone survey.

Convergence Insufficiency

Mary Wackerhagen, B.A.*

A relatively minor muscle disturbance of the eyes which can cause great distress is called *convergence insufficiency*. Symptoms are headaches, sometimes even nausea, general discomfort for near work, and double vision. Can you imagine a child learning to read while seeing double? Or an accountant trying to balance books?

Convergence insufficiency is exactly what it says, a lack or weakness of the ability to converge. As mentioned in a previous article, "Strabismus for the General Practitioner",¹ this is a relatively *minor* muscle problem, but it causes *great* distress. Convergence is the ability to turn the eyes in to *one point* of focus, particularly at the reading distance. With a weakness of this ability, the result is headaches, strain, and double vision. The eye muscles are out of balance. The eyes tend to turn outward at the near point, exophoria, rather than come in to one point of focus.

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They do not actually turn out so that a casual observer notices, but it can be easily established on examination. This condition can occur in both children and adults.

Convergence is a *voluntary*, as well as an involuntary reflex activity. Therefore, convergence weakness can be improved with therapy. Treatment consists of special therapy designed to strengthen the faulty or weak convergence muscles, the medial recti. Convergence power is increased enough to have a reserve supply, as a reserve water supply, to be there when needed. This therapy usually takes only a few sessions. The great distress caused by this seemingly minor muscle problem is easily relieved by such convergence therapy.

REFERENCES

1. Alford, T. Dale, M.D., Wackerhagen, Mary, B.A.: "Strabismus for the General Practitioner," J. Ark. Med. Soc., Vol. 72, No. 1, 1975.
2. Alford, T. Dale, M.D., Wackerhagen, Mary, B.A.: "Your Child's Eyes," 1975.





ELECTROCARDIOGRAM

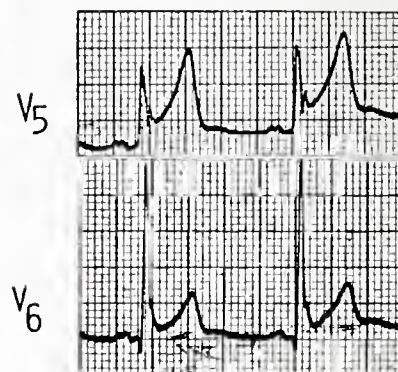
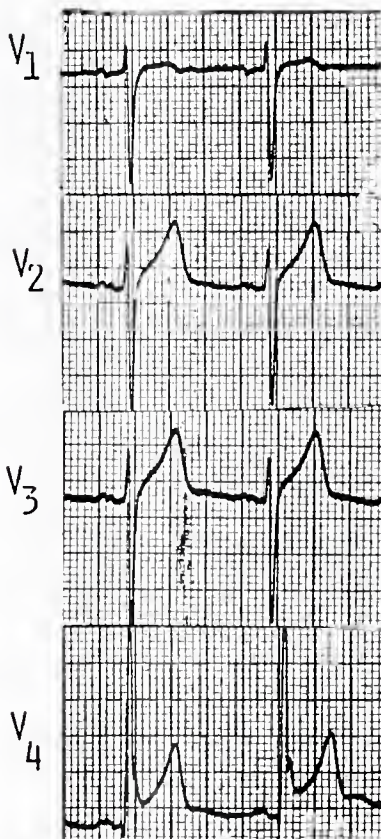
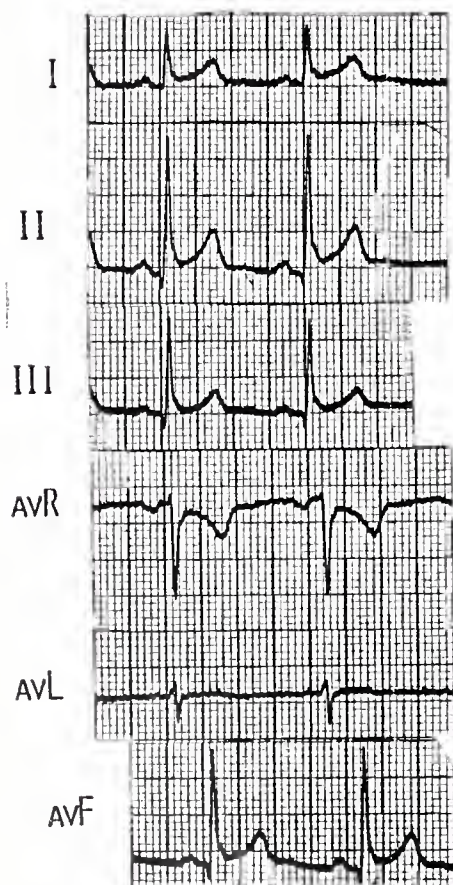
OF THE MONTH



The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 188)

36 YR OLD WH. MALE
JUNE 28, 1976
1 DAY IIX CHEST PAIN



John E. Douglas, M.D.
Acting Chief of Cardiology
University of Arkansas for Medical Sciences
Little Rock, Arkansas 72201



Office Orthopaedics

Limb Ischemia

H. Austin Grimes, M.D.*

Fractures and blunt trauma to limbs are persistent problems and the often times delayed or unrecognized vascular insufficiency with which they are associated complicate their treatment and rehabilitation.

Recognition of vascular impairment begins by thinking of it and then acting promptly and appropriately.

Upper limb injuries are not as frequently associated with vascular problems as lower (1:5 ratio). However, decompression fasciotomy of the forearm in conjunction with brachial artery exploration is more important than comparable injury in the leg.

Sir Robert Peale, the famous London Chief of Constables from which the popular name of "Bobby" is derived, died of a vascular insult relative to a fracture of the clavicle.

Other common injuries of the upper limb which can produce vascular problems are:

- a) posterior sterno-clavicular dislocation,
- b) shoulder dislocation (especially in over-50 age group, because of decreased vessel elasticity)
- c) elbow dislocations (especially extension type)
- d) supracondylar fractures elbow (bulk of upper limb vascular problems)
- e) blunt trauma to forearm as with any direct

blow injury, i.e. baseball bat, puncture wound, etc.

- f) prolonged axillary crutch use.

Pain disproportionate to the injury should make one very suspicious of arterial injury. This pain is probably due to the accumulation of potassium in the muscle. The pain is described as burning at first then deep throbbing ache and is accentuated by the passive flexing of fingers or toes, which is a better indicator for ischemia than nail blanching. Radial pulse may be lost without significant circulatory impairment.

Six minutes after ischemia occurs the sensory nerve, being the more susceptible to anoxia, begins paresthesias distally and progresses proximally in a glove or boot-like distribution, not in a dermatome pattern. Then loss of touch, proprioception, temperature and finally motor loss. Skin is more resistant to ischemia, therefore, when obvious skin damage is present initially then most assuredly vessel, muscle and nerve are more severely impaired. Nerve function recovers more rapidly than muscle function loss due to anoxia.

Lower limb injuries, being the more common, associated with vascular insufficiency must be thought of in any insult, blunt or otherwise. In our experience, motorcycle injuries have contributed a disproportionate number of such cases with vascular impairment. The classic dislocation of the knee is well known for its vascular damage to the leg, but a tibia fractured any-

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where may be associated with ischemia to the foot and leg.

In addition to a thorough examination of the injured limb, arteriography is a helpful adjunct and should not be delayed due to preoccupation with the fracture treatment. Another useful aid is ultrasonic flow meter Doppler testing which may indicate adequate circulation in a limb even with absent pulses.

Treatment of the ischemic limb should be prompt and diligent. Repair of ruptured vessels should be done meticulously and fasciotomy should be used generously. It is not necessary to reduce the fracture prior to vascular repair and may even hinder the exposure. The fracture may be treated after repair of the vessels and fasciotomy. A worsening of the ischemic state may appear in muscle for a time due to accelerated swelling of the muscle and further paling of the muscle color. The natural tendency of the surgeon to over debride pale muscle must be resisted.

Post operatively, it is better to leave the limb on the same level of the torso so as not to add gravity to the problems of recovery from anoxia. Appropriate antibiotic coverage is usually given intravenously and multiple drains may obviate accumulations of hematoma or pus.

We have found that extra-skeletal fixation devices to stabilize fractures facilitate wound observance and toilet.

Use of human antitetanus and toxoid injections are still routine pre-operative orders as well as adequate hemoglobin and hematocrit levels by use of whole blood and packed cells.

Salvaged limbs are proportionate to the effectiveness and speed of the recognition of the vascular problem and its severity. One would expect to have continued impaired affectation due to the crush injury with the causalgia type of complaints. Hopefully, with earlier recognition and prompt action these cases will be fewer in the future.





Spina Bifida

Bobbie J. Buchan, R.N., B.S.N.* and Raymond T. Morrissy, M.D.**

With the eradication of polio, paralysis of children from congenital malformations has become a problem that is intruding itself upon the awareness of the health profession. Because of increased sophistication and availability of medical care, more of these children with congenital defects of the central nervous system are surviving and it is, therefore, incumbent upon us to make their lives as rewarding and productive as possible.

Classification:

Spina Bifida includes a group of developmental defects of the spinal column in which the posterior segments of the spinal column fail to fuse. Depending on the severity of this failure, it may involve the bone only, the bone and meninges, or the bone, meninges and neural elements. The general term *Spinal Rachesis* is used to denote all fusion failures and is further classified as follows: Spina bifida occulta occurs when there is a failure of fusion of the bony vertebral arch without any cystic distention of the meninges. This common finding usually occurs at the 5th lumbar, 1st and last sacral vertebra. It can be quite extensive and yet create no symptoms. It is relatively common—being found in 5% of the population. The skin over the defect is usually normal but may show a hairy patch, a pigmented nevus, a dimple, a hemangioma or a scar. Spina bifida cystica denotes a more severe disease and is divided into two conditions. Meningocele occurs when there is a lack of fusion of the vertebral arches and cystic distention of the meninges. The meningeal sac may contain parts of the spinal cord or nerve roots but they conduct impulses normally. Myelomeningocele oc-

curs when the vertebral arches fail to fuse and there is cystic distention of the meninges along with mal-development of the spinal cord and its subsequent impairment. This impairment can range from mild to severe and can be grouped into four main categories based on which nerve roots are functioning.

- I. Above lumbar three — total paraplegia
- II. Lumbar four and above — paralysis of hip extensors and knee flexors, flail feet, bladder and rectal incontinence, retention of use of knee extensors and hip flexors and adductors.
- III. Sacral one and below — weakness of hip extensors and knee flexors. Paralysis of plantar flexors of feet. Weak inversion and eversion of feet. Inability to spread toes or cup soles of feet. Bladder and rectal incontinence. But: retention of use of knee extensors, hip flexors and adductors, and dorsiflexors of feet; and some use of hip extensors and knee flexors.
- IV. Sacral three and below — bladder and rectal incontinence, but normal lower limbs.

It is apparent that the higher the lesion the greater the disability. Other factors that need to be remembered are these: a) the higher the lesion the lower the survival rate, and b) hydrocephalus occurs with increasing frequency as the level of the lesion increases.

Etiology:

What causes Spina Bifida? To date, only parts of the puzzle have been solved. Most investigators feel that the cause is multifactorial, i.e., a combination of genetic and environmental factors. The neural tube disorders (spina bifida cystica and anencephaly) are the most common

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of all congenital malformations. The incidence of anencephaly in Britain is about two per 1,000 births and that of spina bifida cystica is about the same. Therefore, about one child in 250 births has one of these deformities. The true figures may be much higher since it is probable that many cases abort early in pregnancy. The incidence is, in general, lower in America when compared to Europe but investigators have found that the mortality attributed to spina bifida was two to three times greater on the Atlantic than on the Pacific coast, both in Canada and in the United States. The average is two per 1,000 live births. While the incidence of spina bifida is high in Europe and particularly in Ireland, it is low in Negro and Mongolian races. The races with a high incidence retain this predisposition for spina bifida when they migrate. Higher social classes have a lower incidence of spina bifida. Many environmental factors have been investigated and among these are blighted potatoes, canned meats, tea, and well water but these have not been substantiated. Positive family histories are obtained in around 10 percent of the reported cases. The chance of neural tube defects in siblings born after a child with spina bifida or anencephaly is just over 5 percent. After two malformed infants the chances of having another are between 10 and 15 percent. There is a slight preponderance of females to males with the ratio being 1.5:1. It is more common for the first born child to be afflicted with spina bifida and there is also some evidence for an increased maternal age effect.

Diagnosis:

It is not difficult to diagnose spina bifida once the child is born. Today it is possible to diagnose some cases of spina bifida prior to birth by amniocentesis. Amniocentesis, a procedure predicted on the willingness for an abortion, has proven to be a relatively safe procedure. It should be done around 16 weeks of gestation. Its use depends on identifying a mother at risk and this is usually one who has had a previous child with spina bifida or anencephaly. This therefore limits its usefulness and it is estimated that it would prevent only about 10 percent of the spina bifida children born.

Amniocentesis reveals the possibility of an affected child by detecting increased levels of alphafetoprotein in the amniotic fluid. This is

a normal substance which is increased when an open spinal defect is present. It is also increased in twins and in cases of esophageal atresia, thus making it possible to abort normal children and those with correctable lesions. Currently, methods are being perfected to measure alphafetoprotein in the mother's serum.

Treatment:

In the 1940's the medical care of infants born with spina bifida was relatively uncomplicated and emotionally traumatizing for those providing that care. It was left to the infant to show his survival instincts. This grim picture changed in the late 1950's with the advent of shunt technology and antibiotics. In the sixties great strides were made with early surgery and treatment becoming the rule. Today a hard look at who should receive maximum treatment is being taken by those dealing with these children and the emphasis seems to be increasingly placed not on survival but on the *quality of survival*. It is not difficult to comprehend this concern when one looks at the multiple problems encountered in myelomeningocele. Therefore, the decision to treat or not to treat the newborn with a massive defect is not one to be made lightly. The neurosurgeon is the person most often called upon to make this decision. If his decision is for treatment, he must close the lesion and watch for meningitis. Once the lesion is closed, the head size must be closely monitored for developing hydrocephalus. If this occurs, a ventriculo-peritoneal or ventriculoatrial shunt must be surgically placed. As shunts are foreign bodies, they are sources of infection. If the pumping mechanism fails the shunt must be replaced or revised. The neurosurgeon must continue follow-up care of the child to determine his continuing need for the shunt and its continued function.

The orthopaedic care of these children is perhaps the most varied and long term. During the first year of life the main goal is to aid the child so that his development will parallel that of a normal child. Thus, when the normal child starts to sit at six months, a seat should be provided that supports him in a sitting position. This allows him to develop his visual fields and the use of his hands. When the normal child begins to crawl, a board with wheels is provided so the paralyzed child can move about, exploring

an enlarging environment. When the paralyzed child is ready to stand, a brace is provided that substitutes for his muscles. This permits him to stand as tall as his peers with its obvious psychological advantages while it develops stronger bones, permits better respiration and better kidney drainage. Later, the child can be taught to walk in the brace. Although not all children will walk as adults, they can as children if they are not retarded. Among the other problems the orthopaedic surgeon has to address are scoliosis and kyphosis of the spine, contracture and dislocation of the hips, contractures about the knees and deformities of the feet.

A urologist is needed for most all children since bladder paralysis is the most consistent lesion in spina bifida. The urologic problems are three fold: 1) urinary infections, 2) damage to the kidneys by infection and high urinary pressures and 3) incontinence. According to the level of the lesion, these children have a varying degree of bladder and anal sphincter dysfunction which can cause both urinary and fecal incontinence. A paralyzed bladder allows the pooling of urine which, being stagnant, is a continuous source of infection. The parents are taught early how to empty the bladder by the Crede method. This is done, every few hours, by exerting force on the bladder externally which in turn expresses the urine. The urologist must pay close attention to the status of the urinary tract in order to avoid damage to the kidneys and upper collecting tracts. This is done by intravenous pyelograms, cystograms and laboratory testing. If the child has repetitive urinary tract infections or testing shows changes in the urinary tract, the urologist may decide it is time to divert the child's urinary system. This can be done in several ways but one of the most common is to make a bladder from a part of the child's ileum, attach the ureters and make a stoma in the abdominal wall, thereby assuring continuous drainage of the urine. There are several types of stoma appliances available for the collection of the urine. One problem encountered is that of infection of the skin around the stoma and this is managed much as any diaper rash.

Another method of draining the bladder which is receiving attention in the literature is intermittent catheterization. The patient is taught to drain his bladder by inserting a catheter into the

bladder every three to four hours. A sterile technique is not utilized and both males and females find it relatively easy to do. Long-term results reveal that intermittent catheterization protects the urinary system in a socially acceptable manner and obviates surgical procedures. Bowel management usually takes a little time — attention must be given to the child's diet and other factors. The family must be cooperative. With a little patience, a program can be developed which helps the child lead a more normal existence among his peers. Without bowel training, the child suffers from repetitive bouts of constipation and impaction.

Psychosocial Implications:

Psychological adaptation is difficult for the child with spina bifida and his family. This is on-going in nature with crisis periods which can be easily predicted. The first crisis occurs at the birth of the child. The parents and grandparents have to deal with the fact that the baby which they have looked forward to is not perfect and, in reality, may not survive. Some argue that this is such a devastating blow that parents cannot make rational judgments about their child at this time. The first year of life is extremely difficult for the parents. This is evidenced by the answers they seek during clinic visits concerning their child's eventual ability to sit, walk, talk, and do school work. Mothers are often fearful about caring for the child at home in the first year and need a great deal of support. That support must be community based and it is not unusual for parents to comment that the most important person in their community is the public health nurse. It is not always an easy task to answer some of the questions that parents have but they deserve an honest and realistic prognosis of their child's future in so far as is known.

Some interesting studies have been made concerning the impact of spina bifida on the family unit. The divorce rate is increased which is attributed to many variables — guilt, frustration, blame placed for the defect of the child and anger over the complete involvement of the mother in the child. Siblings also have frustrations of their own with which they must deal. Many voiced their resentment of the time spent on the child and the limitations placed on the family. Finding a happy medium is a difficult task but not impossible to attain.

As the child grows older he must adapt to many changes, many of which he can exert no control over. He must learn to live with braces, crutches, wheelchairs, incontinence and many trips to the hospital. The child's adjustment to his chronic disorder tends to be demonstrated in his behavior patterns. He either becomes fearful, inactive and dependent upon his mother or quite independent, defiant and rebellious. One interesting personality characteristic is the "cocktail party syndrome." The child uses a vocabulary well beyond his years and is quite verbose and animated. When the child's speech is investigated, one finds that the child is using words which he cannot define and usually in a setting with adults. Some observers have noted that with age this type of speech declines, implying that this syndrome may be due to social reinforcement.

It is obvious to any observer that the long-term problems experienced in myelomeningocele are complex and on-going. The continuing need for care and our urbanized society place an additional burden on the child and his family. Here at Children's Hospital, through the Spina Bifida Clinic, which is funded by the Arkansas State Spinal Cord Commission, we are attempting to address some of these problems by utilizing a multidisciplinary team approach. Our team is composed of a pediatric orthopedic surgeon, a neurosurgeon and urologist. In addition, we have occupational and physical therapy, social services, interostomal therapy, orthotic services and pediatric subspecialty consultation services available—all in one hospital. The clinic meets each month and each child receives an in-depth evaluation from each team member. We feel that this approach to care is helpful to all concerned—especially to the patient and his family. We welcome referrals from physicians and parents. Referrals can be made by contacting the clinic.

There have been many accomplishments in the past few years which have added to the quality of survival for the child with spina bifida. There is much to do ahead. We do not make it easy for the handicapped child to live independently in our world. Have you ever stopped to look at all the stairs in schools, hospitals, shopping centers and libraries? Stairs, which we master with ease, are impassable in a wheelchair

and mastered with difficulty when traversed with crutches. Special education classes and schools for the handicapped provide wonderful services but are not necessarily the correct school for the myelomeningocele child with a normal I.Q. Many of the deterrants to normalcy can be removed with little outlay in community funds. What roadblocks can you help remove?

ATTENTION PUBLIC HEALTH NURSES:

Do you have a child in your caseload, age birth to 2 years, who has failed to thrive? Arkansas Children's Hospital has recently established a Failure to Thrive Clinic and we welcome your referrals. The clinic meets each Friday, 8:00 to 12:00 and provides comprehensive services to the child who is failing to thrive due to maternal deprivation or organic causes. This type care can only be successful when undertaken by the hospital and the health professional in the child's community, so heavy emphasis is placed on continuing follow-up care in the community. For further information contact Bobbie Buchan, PNA, 376-4621.



O B I T U A R Y

Dr. Alfred Hiram Hathcock

Dr. Hathcock died June 28, 1976, at the age of 71 in Batesville. He had practiced medicine in Batesville for 16 years. He retired in 1974.

Dr. Hathcock had practiced in Fayetteville prior to locating in Batesville. Over the years, he had been involved in many activities. He was a Fellow of the American College of Surgeons, a Senior Fellow of the Southwestern Surgical Congress, a member of the White River Medical Center at Batesville, and the Sheltered Workshop for handicapped children. He had served on the Board of the Fayetteville City Hospital. He was a veteran of World War II. He had served on the Administrative Board of the First United Methodist Church and was a member of the Lions Club.

Dr. Hathcock is survived by his widow, Mrs. Mary Louise Barnett Hathcock, and two sons, Dr. Alfred B. Hathcock of Fort Smith and Charles Nelson Hathcock of Batesville.



EDITORIAL

Dyslexia

T. Dale Alford, M.D., F.A.C.S., F.I.C.S.*

Although one picture may be worth a thousand words for some things, a picture, however graphic or beautiful, cannot replace the written word in the storehouse of knowledge. The importance of reading the written word "with real accuracy" is the greatest step in the metamorphosis of an educated person. The ability to see well is the ability to read well. The ability to read well is dependent upon a normal mind and a normal individual of normal behavior. In dyslexia there must *not* be any confusion of a *retarded reader* and a *retarded child*. Dyslexia, or reading difficulty, is confined to children of otherwise normal physiology. We must have sufficient ability and training to recognize and differentiate between a retarded reader and a retarded child—easy in many cases but the real crux of the problem.

The retarded reader belongs to the ophthalmologist-orthoptist team first; the retarded child belongs to the pediatrician-child guidance team first. Both problems require the finest teacher available. A summation of statistics indicates more than 20% of reading problems are visual. This accounts for the largest segment of dyslexia. The patient must be treated as well as his specific condition. Reading difficulty in children has frequently been the subject of medical papers as well as education and psychology journals. The laity is more aware than ever of the problems of poor readers. Information on the subject is being presented to groups by teachers with special interest and/or training, public health nurses with no special training or a few with special study in visual screening tests, psychologists, optometrists, psychiatrists, pediatricians. From the viewpoint of the private practitioner in oph-

thalmology it is our opinion that there is a gross lack of standardization of: 1. definition of dyslexia, 2. classification of dyslexia, 3. etiology, 4. emotional and behavioral relation to dyslexia, 5. neurologic phase, and 6. the proper role of the ophthalmologist and orthoptist in the care of children with reading problems. "Seeing is not an isolated function, it is profoundly integrated with the *total* system of the child, in his posture, his manual skills and coordination, his intelligence, and even his personality make-up."

The physiologic act of reading is a voluntary movement of the eyes along a line of print in a succession of jerky or jumpy fixations. Contrary to popular thought, eyes do not sweep or glide smoothly across the written page. The perception of a letter or word or phrase occurs at a momentary standstill or reflex pause. The duration of such a reflex rest is between 0.2 and 0.3 second.¹ The jerky fixations are called saccadic movements. While the act of reading is voluntary, these saccadic movements are entirely reflex and their duration and number cannot be controlled.

The perception of a letter or span of words takes place at the point of standstill. For the normal reader this standstill takes in a whole phrase of words that make up the reading area at the point of standstill. Obviously the size of the area varies from one reader to another in direct proportion to the reader's ability to perceive a larger area of words. As in any skill requiring use of the senses, practice with proper instruction increases the proficiency of the reader.

It has been clearly demonstrated by outstanding investigators that 1. dyslexia is a true entity, 2. that dyslexia in a child with no other problems can be helped.

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According to responsible educators 15% to 30% of the school population is involved in varying degrees.

Examination of the dyslexic child should include:

1. Complete physical examination — with special consideration of endocrine, neurologic and developmental factors.
2. Complete ophthalmologic evaluation — with special emphasis on hyperopia (far-sightedness), fusion, exophoria at near (convergence insufficiency), and mixed eye-hand dominance.
3. Auditory tests — with special emphasis on voiced sounds.
4. Tests for speech defects and their relationship to reading.
5. Psychologic tests to determine emotional and behavior factors.
 - a. Evaluation of educational environment.
 - b. Evaluation of home environment.
 - c. Intelligence tests.

The etiology of dyslexia will be found under these five main headings.

The following are studies done at various centers around the country showing visual problems in cases of poor readers.

*Park 133 cases:*⁵

- 20% with decreased vision in both eyes
- 5% with decreased vision in one eye
- 19% needed glasses
- 22% with low depth perception
- 80% had no ocular dominance
- 3% alternated, used first one eye, then the other
- 7% suppressed one eye (turned it off)
- 52% treated with orthoptics

*Park 215 cases:*⁶

- Average I.Q. 108; average age 12 years
- 31% endocrine imbalance, especially hypothyroidism
- 25% exophoria at near (reading distance)
- 18% compulsive personality
- 23% hearing loss
- 19% needed glasses

*Eames 1,000 poor readers:*⁴

- hyperopia (far-sighted)

- exophoria at near
- I.Q. below 90
- retarded speed of word recognition

*Benton 250 cases*³

- 87% of those treated improved
- 28% convergence insufficiency (almost 1/3)

*Alford, Wackerhagen 62 cases in summer school, ages 6-12 years*²

- 66% mixed eye-hand dominance (cross dominance, left eye, right hand)
- 37% needed glasses (over 1/3)
- 10% had strabismus (muscle imbalance)
- 15% had exophoria at near (convergence insufficiency)

Treatment of the dyslexic child consists of the elimination of any physical or emotional defect, and placing the child under a *good* teacher of reading.

REFERENCES

1. Adler, F. H., "Physiol. of the Eye," C. V. Mosby Co., 1950.
2. Alford, T. Dale, M.D., Wackerhagen, Mary, B.A., *Dyslexia Study*, 1968.
3. Benton, Curtis D., Jr., "Dyslexia and Dominance," *J. Ped. Ophth.*, July, 1965.
4. Eames, T. H., "Comparison of Eye Conditions Among 1,000 Reading Failures, 500 Ophthalmic Patients, and 150 Unselected Children," *Am. J. Oph.* 31, 1948.
5. Park, G. E., "Reading Difficulty (Dyslexia) From an Ophthalmic Point of View," *Am. J. Oph.* 31, 1948.
6. Park, G. E., "Dyslexia From a Physical Viewpoint," *Ill. Med. J.* 97:30, 1950.
7. Park, G. E., et al., "Biologic Changes Associated With Dyslexia," *Arch. Ped.*, 72, 1955.



ANSWER—Electrocardiogram of the Month

Sinus rhythm at 78 per minute.

PR = 0.15

QRS = 0.08

QT = 0.38

Abnormal ST segment elevation in I, II, III AVF, V₃₋₆. Such diffuse ST segment elevation is most compatible with acute pericarditis. This patient had a friction rub with XX gr. ASA, obtained relief within two hours only to have symptoms emerge 6 hours later. Pain then became synchronous with heart beat — Salicylate therapy q 4 hours controlled symptoms and with rest one week later his ECG was normal, and off ASA he was asymptomatic.

MEDICINE IN THE



THE MONTH IN WASHINGTON

Congress is expected shortly to pass legislation that it hopes will bring aid to a foundering Health Maintenance Organization (HMO) program.

The Senate has easily approved (80-8) a measure similar to one adopted by the House last fall authorizing \$250 million over five years for HMO's and relaxing or removing many current federal restrictions.

The snail's pace growth of HMO's, a specific type of prepaid group practice organization, since the original HMO bill was approved three years ago prompted the present Congress to liberalize the program in hopes the concept might move more quickly.

The most controversial feature of the measure in Senate debate was elimination of the open enrollment requirement for most HMO's. Chief Senate HMO champion, Sen. Edward Kennedy (D.-Mass.), felt so strongly about this provision, also in the House bill, that he voted against the bill on the final tally.

Kennedy told the Senate that dropping open enrollment "represents a giant step backward in terms of public policy and has once again resulted in an abdication of the Congressional responsibility to extend the benefits of public programs to those least able to personally confront the members of Congress or their staffs in the same way that the commercial HMO and insurance organizations have been able to."

Proponents of the provision argued that it was needed in order to allow HMO's to be able to compete with other types of health insurance.

The American Medical Association, in testimony before House and Senate, asserted that the open enrollment requirement had been one of the prime justifications for enacting the HMO bill in the first place.

This provision, and some others, served to narrow the legislation to almost a simple subsidy of existing pre-paid group practice plans, the AMA testified.

When Kennedy and others talk about restructuring the present health system the main object they have in mind is making HMO's the dominant form of health care delivery with physicians as employees of the HMO's paid by salary rather than fee-for-service. Despite the importance of the bill, the debate was brief and desultory, except for Kennedy's strong complaint about open enrollment.

In order to attract more physicians to HMO's, the bill would allow physicians to devote as little as 35 percent of their practice to HMO's and still be members of the HMO group. Current law requires more than 50 percent of professional time.

Under the Senate bill, community rating of charges for new HMO's would be delayed for three years compared with five years in the House bill. The Senate version provided that existing HMO's with more than 50,000 members would have to enroll at least four percent of new subscribers as open enrollees.

Some major required basic benefits were excluded, but the Senate retained alcohol and drug abuse treatment and home health services as basic benefits that must be offered. The House had shifted these to the optional, supplemental category.

The Senate bill did not touch on the dual option provision approved by the House, leaving the way clear for this to be enacted. The original HMO bill required employers to give their employees a choice between standard health insurance and a qualified HMO. The so-called "dual option" encountered trouble with labor laws covering collective bargaining rights. As a result, the House gave labor at collective bargaining the right to choose a standard health insurance plan for union members without a worker's option to select an HMO.

But the bill does not permit the reverse, selection of an HMO by labor to the exclusion of a standard plan. Among other reasons for retaining the option in this case is the legal question involved in the federal subsidization of the HMO

as opposed to the non-subsidized standard health insurance package.

* * * *

Former Georgia Gov. Jimmy Carter will send Congress a proposed national health insurance program right off the bat if he becomes President.

The apparent Democratic presidential nominee told reporters "I'm not going to wait . . . on welfare reform, national health insurance, etc., I intend to be ready to go with that the first of the year."

In social programs, former President Lyndon Johnson "did an excellent job, but we still have a long way to go with national health care, reform of the welfare system, reform of the tax system," said Carter. "I don't make those commitments idly," he said. "This is something that should be done. I say that we need a national health insurance program — I mean to do it."

* * * *

The Democratic Platform Committee recommended a comprehensive national health insurance plank for the party's presidential convention in July. The recommended health plank endorsed no specific measure, a blow to labor's hopes for unqualified backing of the Kennedy-Corman NHI plan. A convention floor fight is unlikely.

The committee voted a statement on health that says NHI "should be financed by a combination of methods that will be adequate but not impose new or undue burdens. Consideration should be given to developing a means of support for NHI that taxes all forms of economic income."

The 153-member committee took a partisan slap at the Ford Administration declaring "an increasing Republican emphasis on restricting eligibility and services is emasculating basic medical care for older citizens who cannot meet the rising costs of good health."

Though calling for universal and mandatory coverage, the health plank said "national priorities of need and feasibility should determine the stages of the system's implementation. We must achieve all that is practical while we strive for what is ideal, taking intelligent steps to make adequate health services a right for all our people."

Maximum personal interrelationships between patients and their physicians should be preserved, the proposal said. "We should build on existing structures and experiment with new forms of medical care delivery to mold a national health policy that will meet our needs in a fiscally responsible manner."

* * * *

Earlier, the AMA had told the Democratic Convention Platform Committee that health care would come out second best in the scramble for federal dollars if a new Congress enacted proposals to restructure the entire health system.

Such proposals (which would include the labor-backed Kennedy-Corman bill) advocate a federal government undertaking to finance total medical care of all persons, regardless of their financial circumstances, through additional taxes (which) would result in an overpromise of benefits which could not be fulfilled, the AMA said in a statement filed with the Committee.

"Health care is too important an issue to be put in a position of competing for funds within the national budget along with defense, housing, energy research, AMTRAK, the postal service and other programs. We are concerned that health care would always come out second best."

Said the AMA:

"We are strongly concerned with and object strenuously to the proposals which would seek to restructure the entire health system. Such proposals are based upon theoretical paradigms and do not take into proper consideration the successes of, and general public satisfaction with, our delivery system. Such proposals would impose upon the public a single monolithic, no-choice system in the name of public responsiveness while ignoring the advantages and desirability of the pluralistic system."

Inadequate funding would result in a denial of care, the AMA cautioned, and at the same time impose added burdens on the American taxpayer, "already straining to live after meeting his tax obligations."

The Democratic Platform writers were told that limitations in responsible spending by government are compelling critical choices. It is imperative that the national parties establish responsible priorities in health programs in the interest of the American people, said the AMA statement.

The AMA pointed out that "there has occurred a growing public distrust and disillusionment in federal solutions to problems." At this time, everyone should "squarely face and recognize that the resources available to us as a nation are finite, that there are economic limits to what we can afford as a nation."

Other AMA positions before the Platform Committee:

- Maternal and Child Health — provide full and adequate funding.
- Public and Environmental Health — we must extend and expand efforts to control communicable diseases, with particular emphasis upon the control of and research on vaccines against venereal disease which in fact reached epidemic proportions.
- Department of Health — is needed at the cabinet level in order to maximize the ability of Government to respond appropriately to the health needs of all the American people, to eliminate duplication in programs, and to assure maximum efficiency. . . .
- Mental Health, Drug Abuse, and Alcoholism — full and complete coverage in health insurance of mental health treatment . . . increased funding for manpower training and program implementation in alcoholism, drug abuse and mental health.
- Emergency Medical Services — extend high quality services to all communities in a national program of providing emergency medical service.
- Indian Health — increase substantially the program funding and upgrade and improve facilities and services.

* * * *

The General Accounting Office (GAO) has put a stop order on federal Medicaid payments to states for certain Medicaid programs where standards for long-term hospitalization certifying quality care have not been enforced. The payments, which could add up to \$800 million annually, would be barred after July 1 unless states comply.

The letter from GAO, Congress' investigating arm, stemmed from a running dispute between Health, Education and Welfare Secretary David Mathews and Rep. John Moss (D.-Calif.) over whether HEW has properly enforced provisions of the Medicaid law requiring states to file plans on monitoring patients hospitalized longer than 60 days.

Mathews has contended the problem is partially the federal government's fault and that states and Medicaid beneficiaries shouldn't be penalized. However, Moss, Chairman of the House Commerce Subcommittee on Oversight and Investigations, commented that the GAO action "marks the end of Secretary Mathews' intransigence and the beginning of improving standards of health care for consumers."

* * * *

A majority of adult Americans support a ban on cigarette advertising according to a survey by the National Cancer Institute and the Center for Disease Control.

The survey of 12,500 persons found decreasing tolerance of cigarette smoking since 1970. Nearly two-thirds of those surveyed, including one-third of the smokers polled, said it was annoying to be near a person smoking cigarettes. Also, 56 percent, including 40 percent of the smokers, said that cigarette advertising should be stopped completely.

The survey showed that the proportion of cigarette smokers has declined since 1970, although the total number of smokers has increased by 875,000 based on population.

The restriction of smoking in public places was agreed to by 70 percent of those surveyed compared to 57 percent in 1970.

* * * *

President Ford has signed legislation expanding the role of the National Heart and Lung Institute in blood diseases and resources. The Institute's name will be changed to The National Heart, Lung and Blood Institute to reflect the added responsibilities.

The law authorizes \$339 million this fiscal year and \$373 million for fiscal 1977 for the Institute, part of the National Institutes of Health.

Up to 30 research and demonstration centers will be established to conduct research, provide training, and carry out demonstrations of advanced techniques of prevention, diagnosis and treatment. Ten centers will focus on heart and blood vessel diseases; 10, pulmonary diseases; and 10 on blood diseases, medical use of blood and blood products, and blood resource management.

The bill provides \$40 million for prevention and control activities with special emphasis on cardiopulmonary and blood disorders.

* * * *

The White House Council on Wage and Price

Stability has scheduled hearings in New York, Chicago and San Francisco this summer on rising health care costs and what can be done about them. Though legislation is needed to allow the Council to get back into the business of freezing wages and charges, the Council can make recommendations to the President and Congress on possible solutions. The American Medical Association is expected to testify at the New York hearing.

* * * *

The Justice Department is studying the entire health field for possible anti-competitive aspects, according to Assistant Attorney General Thomas Kauper.

Kauper, head of the Justice Department's anti-trust division, conceded that how anti-monopoly statutes apply to health "is a hard question to answer." At a farewell news conference, Kauper, who is leaving government, noted that most hospitals are non-profit and aren't engaged in competition with other hospitals. He said many hospitals "suggest they're not even a business" and therefore are not subject to antitrust laws.

The Justice Department and the Federal Trade Commission have stepped up their anti-trust actions in health matters in the past year. Justice has filed a price-fixing complaint against the American Society of Anesthesiologists. The FTC, which earlier announced its own broad probe of health, has filed suits against the AMA for ethical prohibitions against advertising, against Blue Shield plans for possible antitrust violations due to alleged physician control, and has changed commercial restrictions in the prescription eyeglass industry.

FTC and Justice have partially overlapping jurisdictions in the antitrust area, and long rivalry exists between the two agencies.

Some dichotomies mark the antitrust units' interest in health. Critics of the U. S. system often characterize it as "a cottage industry," the antithesis of a monopoly. And the HEW Department exerts pressures on the system for uniformity and standardization that in the normal market place would be considered anti-competitive.

Antitrust officials at Justice stress that no imminent legal action is on the horizon; that the health field is simply being studied at present.

* * * *

Society Accreditation Program

In July, the Arkansas Medical Society received official notification from the Council on Medical Education of the American Medical Association that the Society's accreditation program in continuing medical education has been granted full approval by the Council for a period of four years.

The Society will be working with medical groups and institutions in the state in accrediting programs for continuing medical education.

* * * *

Congressman Alexander On Medicare Reimbursement

Congressman Bill Alexander reaffirmed his support in late July of efforts by Arkansas state health officials and doctors to seek a uniform Medicare reimbursement scheme for Arkansas. Alexander is among several members of the House who have offered legislation to give states the option to choose between multi-reimbursement areas or one classification for the entire state.

Alexander said "while I certainly agree with the Arkansas medical community that the Department of Health, Education and Welfare could grant the petition for a single reimbursement scheme for Arkansas without legislation, I believe we must proceed on both fronts."

Congressman Alexander offered an amendment to the DHEW appropriations bill for fiscal year 1977 to cut off Medicare and Medicaid reimbursement funds to metropolitan areas where such payments discriminated against nonmetropolitan health care providers and recipients. Mr. Alexander received pledges from the Chairmen of two House Subcommittees with jurisdiction in this area for the development of legislative remedies to reverse such policies that have thwarted recruitment of doctors and technicians to rural areas.

* * * *

Physicians Invited To Meet With Nurses

All practicing physicians are invited to participate in a panel demonstration between (1) a practicing pediatrician and his nurse practitioner; (2) an Obstetrician-Gynecologist and his nurse practitioner; and (3) an institutional family practice specialist and his nurse practitioner. The panel will be presented at a Dutch-treat dinner immediately preceding the annual meeting of

the Arkansas State Nurses Association. Dutch-treat cocktails at 6:30 and dinner at 7:30 p.m. in the Camelot Inn, Little Rock, on Wednesday, November 17, 1976. Physicians may call the Arkansas State Nurses Association office, 117 South Cedar, Little Rock, telephone 664-5853, for reservations. Reservations deadline is November 10.

* * * *

New Eighth District Councilor



W. Ray Jouett, M.D.
Councilor, Eighth District Arkansas Medical Society

At the 1976 Annual Session, Dr. W. Ray Jouett of Little Rock was elected to the position of councilor for the eighth district, succeeding Dr. W. Payton Kolb.

Dr. Jouett was born in Livingston, Tennessee, and obtained his premedical education at Tennessee Tech in Cookeville, Tennessee. His M.D. degree was obtained from the University of Tennessee Medical School in 1955. Dr. Jouett interned at the City Memorial Hospital in Winston-Salem, North Carolina, and was at the same institution for two years of general surgery residency. He went to Vanderbilt for his Neurosurgery residency. Upon completion of his residency, he entered practice in Little Rock.

Dr. Jouett was a Captain in the Army Medical Corps, serving as Chief of Surgical Services, from 1958 to 1960. He practiced general surgery at Cookeville, Tennessee, from 1960 to 1961, when he entered the Neurosurgery residency at Vanderbilt.

Dr. Jouett was certified by the American Board of Neurological Surgery in 1967. He is a member of the Congress of Neurological Surgeons, the Southern Neurosurgical Society, the American Society of Neurological Surgeons, Meacham Neurosurgical Society, and is a Fellow of the American College of Surgeons, as well as being a member of his county society, the state society, and the American Medical Association.

Dr. Jouett has hospital appointments with the Baptist Medical Center, St. Vincent Infirmary, the University of Arkansas Medical Center, Missouri Pacific Hospital, Doctors Hospital, all of Little Rock, has courtesy staff privileges at the Central Baptist Hospital in Little Rock, and is on the staff of the Memorial Hospital of North Little Rock. He is Associate Clinical Professor of Surgery with the Department of Neurosurgery at the University of Arkansas College of Medicine.

Dr. Jouett's hobbies are music (piano), reading, and photography.

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REPORT OF AMA ANNUAL CONVENTION

June 1976

Dallas, Texas

By Purcell Smith, Jr., M.D.

This summary covers many of the subjects considered during the 25th Annual Convention in Dallas, but is not meant to be a complete report of all actions taken.

ELECTIONS:

Richard Palmer of Alexandria, Virginia, was installed as the AMA's 131st president. John H. Budd of Cleveland, Ohio, was named president-elect and Francis T. Holland of Tallahassee, Florida, was elected vice president. Tom E. Nesbitt and William Rial were re-elected speaker and vice speaker respectively of the House of Delegates. Re-elected to the Board of Trustees were Frank Jirka, Jr. of Illinois and Lowell Steen of Indiana. Newly elected Trustees were John Coury of Michigan and Hubert Ritter of Missouri.

REPORT OF THE AMA PRESIDENT:

Dr. Richard Palmer, in his inaugural address, warned that the federal government is the biggest threat to the medical profession and emphasized that unity in the AMA is the only way to combat federal intrusion into medicine. "Instead of settling for a reasonable adjustment to medical realities," he said, "government is becoming steadily more dogmatic." He specifically encouraged state medical societies, interns and residents, and medical faculty members to all support the AMA in its efforts.

SUMMARY OF ACTIONS OF THE HOUSE OF DELEGATES

I. Association and Internal Matters Of The House:

Organizational Changes: The AMA council system was restructured and streamlined by the House of Delegates with the approval of bylaw changes to establish the size, purpose and tenure for eight standing councils. These councils were Constitution and Bylaws, Judicial, Medical Education, Medical Service, Scientific Affairs, Legislation, Continuing Physician Education, and Long-Range Planning and Development. All other councils and committees will be appointed on an ad hoc basis with a specific phase-out date.

Voting representation is provided for residents on all but the Judicial Council and the Council on Construction and Bylaws. The latter has a non-voting resident member. The AMA Student Business Session has a voting member on the Council on Long-Range Planning and Development and non-voting members on the Council on Medical Education, Council on Medical Service, and Council on Legislation. The AMA Auxiliary has non-voting members on the Council on Scientific Affairs and the Council on Legislation.

Five councils will be elected by the House upon nomination by the Board and from the floor of the House. They are the Councils on Constitution and Bylaws, Judicial, Medical Education, Medical Service, and Scientific Affairs. Two councils, Legislation and Continuing Physician Education, will be appointed by the Board. The Council on Long-Range Planning and Development will be appointed jointly by the speaker of the House and Board of Trustees.

The House also reorganized the interns and

residents Business Session, now renamed the Resident Physicians Section. The structure provides for a seven-member governing council and for representation to the annual business meeting on the basis of one delegate per 100 members.

Independence of the executive, legislative, and judicial functions of the AMA was assured by House approval of bylaws amendments providing that trustees may not be delegates or serve on AMA councils and that members of the Judicial Council elected after July 1, 1976, may not be delegates, general officers, or serve on other AMA councils and committees.

Dues and Financial Matters: The House commended the Board of Trustees for its outstanding service in bringing about dramatic improvement in the AMA's financial situation. The Board reported a projected liquid reserve balance of \$18,000,000 by November 30, 1976, a figure which is in keeping with the fiscal plans approved by the House in 1975. The Reference Committee reported that as of June 30, dues-paying members number 137,023 and that the 1976 budget was based on a full dues-paying membership of 144,500. The House adopted a Board of Trustees report recommending that the \$250.00 dues rate for regular members be continued.

II. Physicians And The Government:

PSRO Support Center Activity Upheld: The House of Delegates turned down a resolution calling for the AMA to assist 13 state medical societies in breaking contracts as statewide PSRO support centers. The Board of Trustees had expressed support for continuing funding of the statewide support centers, at the request of the state societies, a Reference Committee noted. That request was made so the societies could continue assistance in the implementing of appropriate PSRO programs.

Wrongdoing and Fraud in Medicare and Medicaid Programs: The Reference Committee considering government programs noted that the AMA has pledged full cooperation to HEW in seeking to end wrongful practices by providers and offered the following statement, which was adopted by the House: "The AMA condemns and deplores all acts of fraud and wrongdoing, including in particular any wrongful acts as recently reported in the Medicare and Medicaid

programs. We urge that responsible government agencies proceed with all due speed in the prosecution under the provisions of due legal process of all who are charged with guilt or fraudulent misconduct. We will continue to offer our cooperation and assistance in bringing to an end such activities."

Utilization Review Regulations: The House commended the Board of Trustees for its action on HEW's first proposed utilization review regulations and for its continuing attention to the regulations. It asked the Board to take appropriate action "including further legal action if necessary to protect the quality of medical care and to insure against federal intervention into the physician-patient relationship when the final utilization review regulations are published."

III. Physicians And The Public:

Professional Liability: The House called for further study of whether hospitals should obtain professional liability insurance in amounts equal to that of the medical staff. A Reference Committee told the House that such action was needed "to prevent an adversary relationship from developing, due to a discrepancy in liability coverage." The House also encouraged state medical associations to give appropriate assistance to physicians involved in counter suits to nonmeritorious medical liability suits. It expressed concern about the Medical Liability Commission's plans to engage in lobbying and political activity, and directed AMA representatives to seek immediate changes in commission bylaws. The House asked that a progress report on AMA efforts to resolve the professional liability problems be presented at this year's Clinical Convention in Philadelphia.

National Health Insurance: Support for the AMA's NHI proposal HR 6222, now before Congress, was reaffirmed by the House of Delegates in Dallas. The Delegates endorsed the National Health Insurance proposal which would provide both basic and catastrophic insurance coverage, but voted to register their concern "regarding the present enormous cost and always increasing regulatory control inherent in medical care programs administered under government."

Television Violence: The effect of television violence on children will be the target of a broad-based public service program approved by

the House of Delegates in Dallas. The delegates approved a report from the Board of Trustees urging, among other things, publishing of a booklet for distribution to patients, outlining what parents should look for in television programming for children. A committee will also be appointed to evaluate recent research on the effect of TV violence, and to make recommendations on what physicians should know about its effects on children.

IV. Physicians And Hospitals And Medical Schools:

The House of Delegates clarified several policy positions on the rights of physicians in hospital medical staffs, to be sent to the Joint Commission on Accreditation of Hospitals. The AMA opposed release of individual audit reports outside the medical staff (such as to hospital trustees). The House also passed a resolution urging JCAH not to require hospitals to use "laundry lists" of rigid requirements for granting staff privileges, but to permit medical staffs to be flexible in their rules.

V. Miscellaneous Actions Of The House:

Miscellaneous House actions included:

1. Restatement of previous Judicial Council policy regarding use of extraordinary life-sustaining measures, rather than adopt new proposals and definitions;
2. Recognition of a record year by AMA-ERF which received \$2.8 million for student loans in 1975; and
3. Recognition of a very active year by AMPAC regarding membership and activities.

* * * *

Society Travel Program

In July, approximately seventy members of the Arkansas Medical Society and their families participated in the "European Adventure" of the travel program which the Society sponsors for its members. The group visited Switzerland, Germany and Austria.

The chartered World Airways DC-8 jet which brought the group back to the states made a stop for fuel at the Shannon airport. Between Ireland and the states, passengers were served a dinner with the following menu:

*Traditional Irish Oak Smoked Salmon
on Griddle Bread*

The old method of smoking salmon over a

charcoal fire, placing oak leaves on it, is still used in Ireland to produce this delicious salmon.

Filet of Beef "Curath Mir"

The choicest part of beef in an Irish hunter sauce is presented to you as it was done at the time of the Red Branch Knights under the name of "The Hero's Morsel" and was given to the knight who had performed the greatest and bravest exploit.

Fresh Green Garden Peas "Limerick Style"

Tipperary Golden Wonder Potatoes

German White Wine

1972 Blue Nun — Liebframmlch.

Cottage Buttermilk Soda Bread and

Barmbrack with Salted Irish Creamery Butter

Irish Cheese with Crackers

Clare Topsy Cake

Served traditionally at all Irish weddings. A rich jam flavoured fresh egg sponge, soaked in Sherry and Irish Whiskey, topped with egg custard and decorated with double fresh cream. Even the teetotalers and abstainers could partake without breaking their vow.

COFFEE — TEA — MILK

All reports on the trip have been very good. The Society's next trip with INTRAV will probably be to South America in March 1977. Contact the Society headquarters office for further information.

* * * *

Dr. Cathey Honored

The Union County Medical Society honored Dr. Arley D. Cathey with a reception and banquet on Tuesday, June 29th. Dr. Cathey retired from practice on December 31, 1975, at the age of 87, sixty-four years after his graduation from the University of Louisville in 1912.

When Dr. Cathey graduated from the University, he returned to his home of Wilton, Arkansas, where he assisted his father in the practice of medicine. One year later, he attended the New York Post Graduate Medical School and took further training as senior surgical resident at St. Mary's Hospital in Hoboken, New Jersey. He entered the Army as a First Lieutenant in the Medical Corps. He was assigned to the 8th Division Ambulance Company in France. He was promoted to Captain and then was discharged for surgical service with the American Red Cross, and he spent two years in Montenegro with surgical assignments in all four of the Red

Cross hospitals. Dr. Cathey received citations and medals for service in the country which is now Yugoslavia. He returned to practice in El Dorado in 1921. In 1923, he married Ida Newman who was the surgical nurse at Warner Brown Hospital.

Dr. Cathey's surgical practice was carried on primarily at Warner Brown Hospital from 1921 until 1976. During the past year, he donated his library to the hospital.

Mayor Bill Rodman declared June 29th as Dr. Cathey Day in El Dorado and presented a key to the city at the evening banquet. A plaque of appreciation for tireless service was awarded by the Union County Medical Society.

Dr. Jacob Ellis, Master of Ceremonies at the banquet, introduced Dr. Robert Watson, Past President of the Arkansas Medical Society, who addressed the group.

AUTOBIOGRAPHICAL SKETCH

BY DR. ARLEY D. CATHEY

"I was born on June 17, 1889, eighty-seven years ago in Prescott, Arkansas. My family later lived in Washington, Arkansas, and Wilton, Arkansas, where I spent most of my young years. I was endowed with a good strong body but I am afraid with a spirit too restless for my good. At that time, Wilton was a division point of the Kansas City Southern Railroad, and it came very natural for me to start shoveling coal at the age of 14. My father was a doctor and we had a happy home but at the age of 16 I was firing a switch engine in Texarkana on the extra board. I soon moved further south and found myself doing stevedore work on a little freighter out of New Orleans. This was followed by episodes of work as a section gang laborer, a second cook for an extra gang on the Missouri and North Arkansas Railroad and later a harvest hand in the wheat fields of Kansas.

"It is hard for even me to understand how I ever got enough education to have been accepted as a medical student but I graduated at the University of Louisville in 1912. I then returned to Wilton to assist my father in the practice of medicine. My father died the following year and I went to the New York Post Graduate School for further instruction. I returned to Wilton because my mother was there alone operating our drug store.

"After suitable arrangements, I then worked

one year as senior surgical resident at St. Mary's Hospital, Hoboken, New Jersey. From there I entered the United States Army as a First Lieutenant in the Medical Corps and was sent to Medical Officers Training Camp, Fort Oglethorpe, Georgia. I was in the Camp five months and served as instructor part of the time. I was then sent to Rockefeller Institute, New York, for instruction for a month and then to Army Medical School, Washington, D. C., for a month. I was then assigned to the 85th Division and went to France with the Ambulance Company.

"I had influenza while in France but did not have to go to the hospital. I suffered no hardships but things were getting tough on Armistice Day, 11:00 a.m., November 11, 1918.

"I was promoted to Captain and was soon discharged for service with the American Red Cross for surgical work. I was assigned to the Montenegrin unit where we had or established four hospitals along with other civilian relief. During my two years service in Montenegro, I saw service in all four of our hospitals. While in Montenegro, the Serbian Government was busy developing that part of the country into greater Serbia and is now known as Yugoslavia. While there I, as well as others, received citations and medals for service. The Russian Government, who also wanted in on the action, also gave medals and citations.

"The Montenegrin Government, one time a kingdom, and at that time in exile and located in Paris, also gave citations to the few who went to see them upon leaving Montenegro. My citation came to me as a surprise about a year after locating in El Dorado.

"I came to El Dorado with a little money in my pocket but my greatest asset was my good health and physical stamina and overflowing ambition, enthusiasm and confidence in the future. I soon began to look for a wife and found exactly the right one. She was Ida Newman and was the surgical nurse at the Warner Brown Hospital. We were married in 1923. We felt we were fortunate in not having a larger family than we did. We lost a premature boy but we were blessed with a son, Arley D. Cathey, Jr., who with his wife now lives with me and is in business in El Dorado and Magnolia. I lost my wife in 1966 and soon felt that my career as a physician was about over, but I very sensibly

continued in practice until January 1, 1976, when I believe I retired at exactly the right time.

"While in practice in El Dorado, I was associated at various time with the following doctors: Wylie Slaughter, D. E. White, Garland Murphy, Sr., Garland Murphy, Jr., S. J. McGraw, John W. Harper, Randolph Murphy and Henry H. Niehus, all of whom were fine doctors and contributed much to the pleasure and the success of my practice.

"All of the doctors now in practice in El Dorado are highly skilled and are rendering a superb service to this community."



THINGS TO COME

SEPTEMBER 30 & OCTOBER 1, 1976

The Eighth Annual Cancer Forum for Physicians and Nurses will be held at the Sheraton Inn in Fort Smith on September 30 and October 1, 1976. The forum is sponsored by the Arkansas and Oklahoma Divisions of the American Cancer Society. Subjects to be covered include Malignant Melanoma, Childhood Cancer, Cancer Diagnosis, Cervical Cancer, and Thyroid Cancer. For further details, contact the Arkansas Division, American Cancer Society, Post Office Box 3822, Little Rock, Arkansas 72203.

OCTOBER 13-15, 1976

International Food Allergy Symposium sponsored by the American College of Allergists, October 13-15, 1976, Four Seasons Sheraton Hotel, Toronto, Ontario, Canada. For information, contact: Frances P. White, 2141 14th Street, Boulder, Colorado 80302, telephone 303-447-8111.

OCTOBER 24-28, 1976

Forty-Second Annual Scientific Assembly of the American College of Chest Physicians in Atlanta, Georgia. The convention theme is "Clinical Implications and Projections in Cardiopulmonary Medicine and Surgery." Distinguished lecturers include Eugene Braunwald, Denton A.

Cooley, Thomas N. James, John W. Severinghaus, and William M. Thurlbeck. J. Willis Hurst will be the keynote speaker. For information, contact, American College of Chest Physicians, Post Office Box 93826, Chicago, Illinois 60670.

NOVEMBER 21-24, 1976

Pediatric Emergencies — Little People, Big Problems. November 21-24, 1976, Orlando Hyatt House, Orlando, Florida. Sponsored by the Florida Chapter of the American College of Emergency Physicians. For further information, contact: Registrar, Pediatric Emergencies, 1919 Beachway Road, Suite 5C, Jacksonville, Florida 32207, telephone 904-399-0510.

NOVEMBER 3-6, 1976

International Congress on Coronary Disease and Exercise Electrocardiography, Montreux,

Switzerland, November 3-6, 1976. Congress is sponsored by the International Medical Education Corporation and will concentrate on new concepts in the field of diagnosis and rehabilitation of the patient with cardiac disease. Reservations to be made with International Medical Education Corporation, One Inverness Drive, East, Englewood, Colorado 80110, telephone 800-525-8646.

JANUARY 23-29, 1977

The Southern Clinical Neurological Society will hold its fourth annual meeting January 23-29, 1977, at Pier 66, Fort Lauderdale, Florida. The Society is now accepting abstracts of papers for the meeting. Inquiries about membership, abstracts, and information on the meeting may be obtained from Dr. Beauregard Bercaw, 1011 Jeffords, Clearwater, Florida.



PERSONAL AND NEWS ITEMS

Physician Addresses Club

Dr. John Henderson recently addressed the Searcy Optimist Club on the subject of "Cardiovascular Diseases."

Dr. Pullig Relocates

Dr. Thomas A. Pullig, who has been practicing in Ashdown, has associated with Dr. Joe Rushton in the Rushton Clinic on North Washington Street in Magnolia.

AHEC Director

Dr. Roger Bost has been named executive director of the State's Area Health Education Centers (AHEC), succeeding the late Dr. Winston K. Shorey. AHEC has facilities at Fort Smith, El Dorado, Jonesboro, Fayetteville and Texarkana.

Dr. Hammons Elected

The Forrest Memorial Hospital at Forrest City has re-elected Dr. Edward P. Hammons as chief

of staff. Dr. E. Morgan Collins is vice chief and Dr. Charles Crawley is secretary.

University Honors Dr. Hawkins

Dr. Martin C. Hawkins of Searcy was recently honored with the Distinguished Service Award of the University of Arkansas College of Medicine in recognition of his 47 years on the voluntary faculty of the school. He is presently a member of the honorary clinical faculty as an associate clinical professor of surgery.

Dr. Dunn Has P.A.

Dr. Tom Dunn of Hampton has announced the appointment of Mr. Stephen Heath as his physician's associate. Mr. Heath recently completed the Physician's Associate course at the University of Oklahoma.

Family Clinic Has Open House

Open house was held recently at the new Lawrence County Family Clinic on Highway 25 West

in Walnut Ridge. Physicians on the staff of the clinic include Dr. Joe Hughes, Dr. Ted Lancaster, Dr. S. A. Spades, and Dr. R. D. Lowery.

Dr. Wyllie Named Chief of Staff

Dr. James J. Wyllie of Pocahontas has been named chief of staff of the Lawrence County Memorial Hospital in Walnut Ridge.

Dr. Archer Retires

Dr. Charles A. Archer, Jr., has announced his retirement after 33 years of the practice of medicine at Conway.

Physicians Locate

In July many members announced new associates. A number of physicians also established solo practices across the State. Some of the physicians involved are listed below.

DR. GARY W. RUSSELL has joined the Dardanelle Clinic as a family physician.

DR. JAMES H. ARKINS has opened an office for family practice at 216 North Main in Bentonville.

DR. WILLIAM W. GALLOWAY is practicing Dermatology in the Professional Park Building at 2504 West Main in Russellville.

DR. DONALD DUNN has joined the medical staff of the Millard-Henry Clinic in Russellville for the practice of Obstetrics-Gynecology.

DR. WILLIAM A. JONES is the new medical director of the Aluminum Company of America facility at Bauxite.

DRS. C. LINDSEY MILLER and DAVID R. CRITTENDEN are with Nephrology Associates at 350 Medical Towers Building, Little Rock.

DR. AUBRY TALLEY has joined Drs. Charles Henry and Juan Roman-Lopez for the practice of Obstetrics and Gynecology at 500 South University, Little Rock.

DR. R. WHIT HALL has joined the Little Rock Children's Clinic at 8500 West Markham for the practice of Pediatrics.

DR. JOHN R. RUSSELL has joined the Lake Village Clinic in Lake Village.

DR. MICHAEL NEFF has joined Dr. Ralph Joseph in family practice at Walnut Ridge.

THE RAINWATER-WORKMAN CLINIC in Blytheville has announced the association of Dr. Munir Zufari for the practice of General, Vascular and Thoracic Surgery.

DR. ROBERT R. WILLIAMSON has located in Gravette to practice with the Gravette Medical Associates in their new clinic.

Arkansas Physicians Serve

Dr. William L. Griggs of Fort Smith is currently serving as president of the Southern Clinical Neurological Society. Dr. David Miles of Little Rock is a member of the Board of the Society.



NEW MEMBERS

The Boone County Medical Society has recently added three new members to its roll. They are:

DR. DONALD R. BUTTS, who is Medical Director of the Ozark Regional Mental Health Center in Harrison. Dr. Butts is a native of Missouri and he attended the Missouri University School of Medicine. His internship was at Madigan General Hospital, Fort Lewis, Washington. From 1968 until 1971, Dr. Butts was a flight surgeon with the United States Army. He entered a psychiatry residency at the Arkansas State Hospital in 1972 and located in Harrison upon completion of that residency.

DR. NANCY TIMMONS HALLER has been in family practice at the Newton County Medical Center in Jasper for approximately eighteen months. She attended the University of Arkansas at Fayetteville, receiving the B.S. degree in

1970, and was graduated from the University of Arkansas School of Medicine in 1974. Dr. Haller completed an internship at Dallas Methodist Hospital and joined the National Health Service Corps of the United States Public Health Service.

DR. HAROLD HALLER is also associated with the Newton County Medical Center in Jasper as a family practitioner. His pre-medical education was obtained at Arkansas A & M College and his M.D. degree was received in 1974 from the University of Arkansas School of Medicine. He interned at Dallas Methodist Hospital and joined the National Health Service Corps of the United States Public Health Service.

Washington County Medical Society has reported the addition of four new physicians to its membership roll. They are:

DR. GEORGE H. BENJAMIN, a family physician whose office is at 304 South Maxwell in Siloam Springs. Dr. Benjamin attended Culford College in Greensboro, North Carolina, receiving the A.B. degree in 1963. He was graduated from the University of Arkansas School of Medicine in 1970. Dr. Benjamin served an internship at Harborview Medical Center in Seattle and had residency training at the University of Oregon in Portland. His military service was with the Public Health Hospital in Philadelphia.

DR. MURRAY T. HARRIS located in Fayetteville in July 1975 for the practice of Diagnostic Radiology. His pre-medical education was at the University of Arkansas. In 1968, he was graduated from the University of Arkansas School of Medicine. He served a rotating internship at the University Hospital and then served two years with the United States Army. Dr. Harris returned to the University Hospital in 1971 for a residency in Radiology. He was Chief Resident in Radiology in 1973-74, an Instructor in Radiology in 1974-75, and is currently an Assistant Clinical Professor in Radiology at the University of Arkansas College of Medicine. He was Board Certified in Radiology in June 1975 and he is a member of the American College of Radiology.

DR. JOSEPH HOWARD McALISTER practices Radiology at the Huntsville Memorial

Hospital in Huntsville. He is a graduate of Duke University School of Medicine. He served a rotating internship at Baptist Memorial Hospital in Memphis. He had residencies in Internal Medicine at John Gaston Hospital in Memphis and in Radiology at Kennedy Veterans Hospital in Memphis and Duke Hospital in Durham. Three months were spent with the Oak Ridge Institute of Nuclear Studies. Dr. McAlister has served eight years with the United States Army Reserve and the Texas National Guard. He practiced twenty-two years in Midland and Odessa, Texas. He is a Diplomate of the American Board of Radiology.

DR. CLIFFORD C. COUNCILLE, JR., has been in practice in Fayetteville since January 1976. His specialty is Obstetrics-Gynecology and he practices at 207 East Dickson. Dr. Councille attended Memphis State University prior to entering the University of Arkansas School of Medicine. He interned at the City of Memphis Hospitals and completed a residency at the University of Arkansas Medical Center. He is a Junior Fellow of the American College of Obstetrics and Gynecology.

A new member of the Independence County Medical Society is DR. NATHAN EDWARD STRICKLAND of Batesville. Dr. Strickland obtained his M.D. degree from the University of Arkansas School of Medicine in 1969. He served a straight medicine internship at the University Hospital. He served in the United States Navy from 1971 to 1973 and then returned to the University Hospital for further training in surgery. He is an instructor in the Department of Surgery at the University of Arkansas College of Medicine and is a candidate for the American College of Surgeons. Dr. Strickland practices general surgery at 109 North 12th in Batesville.

DR. ROBERT D. PIAT is a new member of the Crittenden County Medical Society. A native of New York, Dr. Piat attended the University of Florida for his pre-medical education. He served in the United States Army from 1957 until 1959. He then entered the University of Maryland School of Medicine and obtained his M.D. degree in June 1963. His internship was completed at Tampa General Hospital in Tampa, Florida. After completion of the in-

ternship he practiced for six years in Zephyrhills, Florida. He is associated with the Health Care Foundation at West Memphis.

The Pulaski County Medical Society has added a number of new members to its roster in recent weeks. The new members are:

DR. C. FRANK DODSON, JR., who is associated with the Little Rock Orthopedic Clinic at 12th and Van Buren in Little Rock. Dr. Dodson attended Vanderbilt University and the University of Tennessee School of Medicine. After obtaining his M.D. degree in 1969, he served for a year with the United States Naval Hospital at Jacksonville, Florida. Dr. Dodson completed a residency in Orthopedic Surgery at the University of Arkansas Medical Center in June of 1976.

DR. PETER R. DORNENBURG is associated with the Arkansas Orthopaedic Clinic, P.A., at 500 South University in Little Rock. He is a native of Pennsylvania and obtained his M.D. degree from the University of Pittsburgh School of Medicine in 1969. Dr. Dornenburg then went to Vanderbilt University Hospital for his internship. He remained at Vanderbilt for residencies in General Surgery and in Orthopaedic Surgery. He was certified by the American Board of Orthopaedic Surgery in September of 1975.

DR. JACK FENDLEY practices Internal Medicine at 2500 McCain, North Little Rock. Dr. Fendley is a graduate of the University of Arkansas at Fayetteville and the University of Arkansas School of Medicine in Little Rock. His internship and residency in Internal Medicine were also completed at the University of Arkansas Medical Center Hospital. He has taken the examination for certification by the American Board of Internal Medicine.

DR. VIRGLE E. LYONS, JR., is a General Surgeon with offices at 500 South University in Little Rock. He is a native Arkansan and obtained his M.D. degree from the University of Arkansas School of Medicine in 1968. His internship and General Surgery residency were also at the University of Arkansas Medical Center. Dr. Lyons was certified by the American Board of Surgery in 1975 and he is a member of the Little Rock Academy of Surgery and the Southwestern Surgical Congress.

DR. JERRY D. MALOTT is one of the new specialists in Internal Medicine in Little Rock. His office is in Suite 670 of the Medical Towers Building. Dr. Malott was graduated from the University of Arkansas School of Medicine in 1973. His internship at the University Hospital was followed by a residency in Internal Medicine at the same institution. Dr. Malott is Board eligible in Internal Medicine.

Also in the practice of Internal Medicine at 670 Medical Towers Building in Little Rock is DR. JAMES A. McMILLAN. Dr. McMillan attended Henderson State University and was graduated from the University of Arkansas School of Medicine in 1973. His internship and Internal Medicine residency were at the University of Arkansas Medical Center. He is Board eligible in Internal Medicine and is a member of the American College of Physicians.

DR. DAVID L. REDING has recently associated with Neurological Surgery Associates at 750 Baptist Medical Towers Building in Little Rock. Dr. Reding is a native of Fort Smith. He attended the University of Arkansas and the University of Arkansas School of Medicine in Little Rock, obtaining the M.D. degree in 1971. After his internship at the University Hospital, he completed a residency in Neurosurgery at the same institution.

An assistant professor in the Department of Orthopaedic Surgery at the University of Arkansas College of Medicine is among the new members of the County Society. He is DR. EDWARD R. WEBER. His specialty is Hand Surgery. Dr. Weber came to Arkansas from the Mayo Clinic in Rochester where he completed his Orthopaedic Surgery residency in 1975. He was graduated from Marquette University in Milwaukee in 1967 and served an internship at Albany Medical Center in Albany, New York. He is a member of the Orthopaedic Research Society.

DR. T. BEN WILSON is located at 2500 McCain Boulevard in North Little Rock for the practice of Internal Medicine. He is a native of Missouri and was graduated from the University of Missouri School of Medicine in 1973. He then came to Arkansas for his internship at the University of Arkansas Medical Center and completed a residency in Internal Medicine at the

same institution. He is Board eligible in Internal Medicine.

Several of the new members of the State Society are from Sebastian County. They are:

DR. ROBERT CHARLES BARKER, who is associated with the Holt-Krock Clinic in the practice of Gastroenterology. Dr. Barker is a graduate of the Tulane University School of Medicine and served his internship at Charity Hospital in New Orleans. Following internship, he served two years with the United States Air Force. Dr. Barker then went to Baylor College of Medicine for his residency. He has been associated with the Holt-Krock Clinic since completion of his residency. He is Board Certified by the American Board of Internal Medicine.

DR. DAVID B. KOCHER is associated with Cooper Clinic at Fort Smith. He specializes in Endocrinology and Internal Medicine. Dr. Kocher is a native of Wisconsin and received his M.D. degree from the University of Wisconsin School of Medicine in 1967. He completed his internship and residency in Internal Medicine at Wilford Hall United States Air Force Medical Center in San Antonio and was an Endocrine Fellow there from 1970 to 1972. He was Assistant Clinical Instructor at the University of Texas in San Antonio from 1968 to 1972 and was Assistant Clinical Professor at the University of California from 1972 to 1975. He was Board Certified in Internal Medicine in 1973.

DR. JEFFREY M. NIEMANN has recently located in Fort Smith for the practice of Dermatology. His office is at 316 Lexington. Dr. Niemann came to Fort Smith from El Dorado. He

is a native of Indiana and attended the University of Indiana School of Medicine. After receiving his M.D. degree in 1968, he interned at Borgess Hospital in Kalamazoo, Michigan. He then served on active duty with the United States Army. Following the Army service, he entered a residency at the University of Arkansas Medical Center in Little Rock. He is a member of the American Academy of Dermatology, the Dermatology Foundation and the Society of Investigative Dermatology.

DR. ERNEST E. SERRANO has joined the staff of the Holt-Krock Clinic in Fort Smith for the practice of Neurology. Dr. Serrano obtained his pre-medical education at the University of Pennsylvania and the University of Florida. His M.D. degree was obtained from the University of Florida in 1966. He completed his internship at the Medical College of Georgia. His residency training was obtained at the Medical College of Georgia and at the University of Florida. He served two years with the United States Navy. He practiced for one year at Hollywood, Florida, and one year at Santa Rosa, California. Dr. Serrano is a member of the American Academy of Neurology and the American College of Physicians.

DR. JOHN R. WILLIAMS is another one of the new physicians in Fort Smith. He is Director of the Family Practice Residency Program at 100 South 14th Street. Dr. Williams is a native Arkansan who received his M.D. degree from the University of Arkansas School of Medicine in 1959. He went to Riverside Hospital in Toledo, Ohio, for his internship. He was in private practice in Oregon, Ohio, from 1960 until 1974. He is an Assistant Professor at the University of Arkansas College of Medicine.



October, 1976

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orders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anti-convulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful

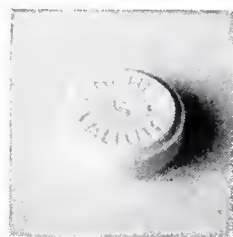
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spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



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Protecting the Macula During Eye Surgery

Morriss M. Henry, M.D., Lewis M. Henry, M.D., and Louise M. Henry, M.D.*

Cystic macular edema is perhaps the most frequent and vexing complication of eye surgery. Some ophthalmologists have reported as high as 50% of their patients undergoing cataract surgery have shown varying degrees of edema in or near the macula some time after the cataract surgery. Macular edema following retinal detachment surgery when the macula is on prior to surgery is a not infrequent complication. However, until relatively recently few ophthalmologists were aware of the existence of cystic macular edema.

We feel that the frequency of cystic macular edema is related to some modern changes in the technique of eye surgery, especially cataract surgery, rather than an increased awareness on the part of ophthalmologists of the clinical findings in cystic macular edema. We believe the changes in surgical technique responsible for the changes developing in the macula are related to the duration of exposure of light from operating lights. Strong, more direct illumination, striking the posterior portion of the retina of the patient's eye from operating microscopes and increased operating time as microsutures are used for better wound closure all lead to more and longer exposure to light.

It has been shown by many investigators that intense light can damage the human retina.¹⁻¹² For a long time it was thought that the amount of light necessary to damage the retina had to approximate that of sunlight. Light coagulators and lasers used in retinal surgery deliver intense focal beams of light on the retina. However, some investigators found much less intense light could create a damaging effect on a monkey's retina.⁹ It has been proven that a Rhesus monkey's retina can be damaged by exposure to light of 500 to 600 foot candles for fifteen minutes. Standard operating room spotlights usually produce 2,000 foot candles each. The

microscopic lights used in eye surgery are often much in excess of 600 foot candles of illumination.

The human eye normally has protecting mechanisms to guard the retina from excessive light. The situation is changed during eye surgery when the pain is blocked by sedation and the pupil dilated by drugs. The patient's eye is directed toward the operating light for an extended period of time during surgery, especially during retinal detachment surgery.

To avoid this potential harm to the patient's macula, we cut a small button of gel foam and cover the cornea except when necessary to remove the cataract or examine the retina during retinal detachment surgery. Covering the cornea is not a new concept,¹³ but the importance of protecting the retina from operating lights during eye surgery has not been sufficiently noted. Reports in the literature offer us ample evidence of the potential harmful effects of light of the intensity used in eye surgery, but the relationship to the occurrence of macular disease following eye surgery is not mentioned.

While our series of cases is not sufficiently large and the duration of time not sufficient to rule out the possible delayed development of cystic macular edema, none of our cases have shown clinical evidence of cystic macular edema since we instituted this protective measure. We therefore recommend that some form of protection of the retina such as we have described be used during eye surgery.

REFERENCES

1. Hitchings, R. A., Chisholm, I. H., and Bird, A. C.: Aphakic macular edema incidence and pathogenesis. Presented at the Association for Research in Vision and Ophthalmology Spring Meeting, Sarasota, Florida, April 25, 1974.
2. Verhoeff, F. H., Bell, L., and Walker, C. B.: The pathological effects of radiant energy on the eye. *Proc. Am. Acad. Arts Sci.* 51:629, 1916.

*204 S. East, Fayetteville, Arkansas 72701.

3. Meyer-Schwickerath, G.: *Light Coagulation*. St. Louis, C. V. Mosby, 1960.
4. Geeraets, W. J., and Ridgeway, D.: Retinal damage from high intensity light. *Acta Ophth.* 76 (suppl.): 109, 1963.
5. Fine, B. S., and Geeraets, W. J.: Observations on early pathologic effects of photic injury to the rabbit retina. *Acta Ophth.* 43: 684, 1965.
6. Noell, W. K., Walker, V. S., Kang, B. S., and Berman, S.: Retinal damage by light in rats. *Invest. Ophth.* 5:450, 1966.
7. Gorn, R. A., and Kuwabara, T.: Retinal damage by visible light. *Arch. Ophth.* 77: 115, 1967.
8. Kuwabara, T., and Gorn, R. A.: Retinal damage by visible light: An electron microscopic study. *Arch. Ophth.* 79: 69, 1968.
9. Friedman, E., and Kuwabara, T.: The retinal pigment epithelium. IV., The damaging effects of radiant energy. *Arch. Ophth.* 80: 264, 1968.
10. Grignolo, A., Orzalesi, A. G., Castellazzo, R., and Vittone, P.: Retinal damage by visible light in albino rats. *Ophthalmologica* 157: 43, 1969.
11. Kuwabara, T.: Retinal recovery from exposure to light. *Am. J. Ophth.* 70: 187, 1970.
12. Ts'o, M. O. M., Fine, B. S., and Zimmerman, L. E.: Photic maculopathy produced by the indirect ophthalmoscope 1. Clinical and histopathologic study. *Am. J. Ophth.* 73: 686, 1972.
13. Cosgrove, K. W., Jr.: Personal communication.



Arthroscopy of the Knee

Robert G. Eubanks, M.D. and Carl L. Nelson, M.D.*

Arthroscopy in the early part of this century, was less than satisfactory because of crude instrumentation. Improvement of the fiber of optic systems allowed arthroscopy to become a refined technique for non-invasive direct inspection of the knee joint. Arthroscopy is presently a valuable diagnostic adjunct for the Orthopaedic Surgeon because of the increased sophistication that has been developed with this technique. There are reports showing the effectiveness of arthroscopy in obtaining diagnosis in problem knees where diagnostic accuracy has often been imperfect.

Casscells¹ in 1971 reviewed 150 patients evaluating the role of arthroscopy in diseases of the knee. He stated that the technique of arthroscopy is demanding and requires experience for accurate interpretation. His analysis showed the majority of lesions to be meniscal, however, several had meniscal lesions opposite to the side of the symptoms. He also showed that the degree of subluxation of the patella can be evaluated better by arthroscopy than arthrotomy—since the medial capsule is intact during arthroscopy allowing visualization of the true relationship of the patello-femoral joint.

Dandy and Jackson² report that in 614 patients that would have had arthrotomy open operation was avoided in 32%; in 27% a different operation was done; and no important change was recorded in 41%. Jackson and Abe³ analyzing 200 consecutive patients found arthroscopy to be useful, or very useful, according to their criteria, in 88.5% of their patients. They also suggested that arthroscopy could be effective in avoiding unnecessary surgery in as many as 48% of patients. The indications they found most appropriate for arthroscopy were: 1) adolescents with poorly localized symptoms, 2) patients with litigation pending, 3) patients with minimal or conflicting objective findings, 4) post-operative patients still having symptoms, 5) professional athletes where early diagnosis is an economic necessity, 6) patients that were unable to communicate, 7) monarticular arthritis, 8) osteoarthritis, 9) where helpful to prognosis or research. In essence, the main benefit of arthros-

copy appears to be in the problem knee for which no accurate clinical diagnosis can be made.

It has been suggested that clinical diagnosis is correct in only 60-70% of the patients with knee problems. Arthroscopy has a reported accuracy of approximately 85%, with the lateral meniscus less accurately diagnosed than the medial. DeHaven and Collins⁴ recorded an arthroscopy accuracy of 94%.

There are few contraindications to arthroscopy. Those cited are: 1) stiffness of the joint, 2) recent hemarthrosis, and 3) infection elsewhere. Although hemarthrosis is usually cited as a contraindication, O'Connor⁵ has reported the procedure to be useful in 18 or 19 patients with acute ligamentous injuries with hemarthrosis. The usual experience, however, is that acute hemarthrosis produces a complete "red out"—an inability to see nothing but red through the arthroscope.

The technique of arthroscopy is precise—orientation and interpretation are the keys to a successful examination. Sterile technique is used. The instruments are gas sterilized. Usually general anesthesia is administered and the knee is surgically prepared and draped as in any surgical procedure. A tourniquet is then placed above the knee but not inflated unless brisk bleeding is encountered. A puncture wound is made into the suprapatellar pouch with a large bore needle and the joint distended with normal saline. The sheath and trocar are introduced lateral to the patellar tendon and slightly above the joint line. A blunt obturator is then used to complete the puncture through the synovium and into the knee joint. The sheath is then placed in the suprapatellar pouch with the knee extended and the obturator is exchanged for the arthroscope. The irrigation system is turned on and saline enters the joint. With the room lights dimmed, the examination begins. First, inspection of the suprapatellar pouch is made—seeing the needle in this area is helpful in orientation. The synovial lining and pouch is then inspected. Normal appearing synovial folds and frons may be seen. Symptomatic arteriovenous malformations may also be found in this area as well as loose bodies, adhesions, or plicas.

*From the Department of Orthopaedic Surgery, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Arkansas 72201.

The arthroscope is then slowly withdrawn and the articular surface of the patella is seen. The normal articular surface is smooth and white in its appearance. By ballotting the patella with one hand, most of the patella surface can be seen. Normal articular cartilage is readily recognized as well as pathological cartilage. Chondromalacia is readily apparent with fibrillation of the cartilage and irregularities of the articular surface. The scope is then turned over and the femoral groove inspected. The scope is then slightly withdrawn between the patellofemoral articulation and with flexion of the knee the congruity of the patellofemoral joint will be brought into prominence. Any irregularity is readily apparent.

Inspection is then made into the medial compartment by sliding over the femoral condyle and noting its articular surface in passing. The medial meniscus is usually seen as the scope nears the tibial surface. Examination is begun anteriorly or posteriorly (whichever appears easiest upon entering the medial compartment). The inner rim of the normal meniscus will appear smooth, regular, white and avascular lying flat on the tibial surface. The remainder of the meniscus will appear to be sloping upward to its peripheral attachment. Most of the meniscus can be seen by flexion, extension, valgus, varus stress or internal, external rotation maneuvers of the knee. A "blind area" in both menisci occurs in the posteromedial and posterolateral aspect at the peripheral attachments of each meniscus. Inability to see these areas is one of the limitations of the use of arthroscopy. Other areas not well seen are the popliteal area and the posterior cruciate ligament. Collateral ligaments are not visualized unless detached and lying within the joint.

Inspection of the medial compartment is completed with the study of both femoral and tibial articular surfaces. Usually, the normal is readily distinguishable from the abnormal as seen in the arthritic knee. The scope is then directed to the intercondylar area and the anterior cruciate is inspected. The anterior cruciate is normally a white, glistening, silkysmooth structure with occasional blood vessels. It may be seen when torn and appear to represent numerous discolored synovial folds, or actual torn ends of the ligament may be seen directly.

The arthroscope is then maneuvered into the

lateral compartment. As in the medial compartment, inspection of the meniscus and articular surface is made. The following examples display some of the pathology found in the knee joint.

In figure 1, a loose body was found lying on the meniscus. In this instance, a loose body could have easily been missed inasmuch as the torn meniscus was present.

Figure 2 represents an actual tear in the posterior aspect of the lateral meniscus. The anterior and middle $\frac{1}{3}$ of the meniscus was intact and indeed even at arthrotomy this posterior tear might well have not been seen, especially in the "tight knee".

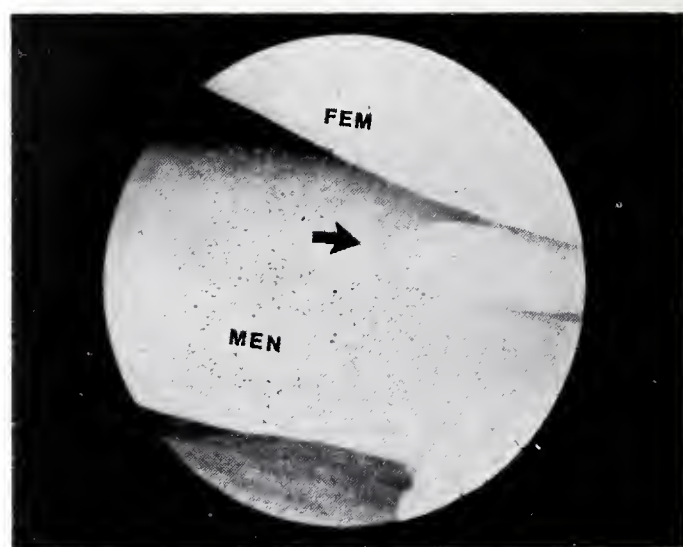


Figure 1.
Arrow points to loose body lying on meniscus (MEN) beneath femoral condyle (FEM).

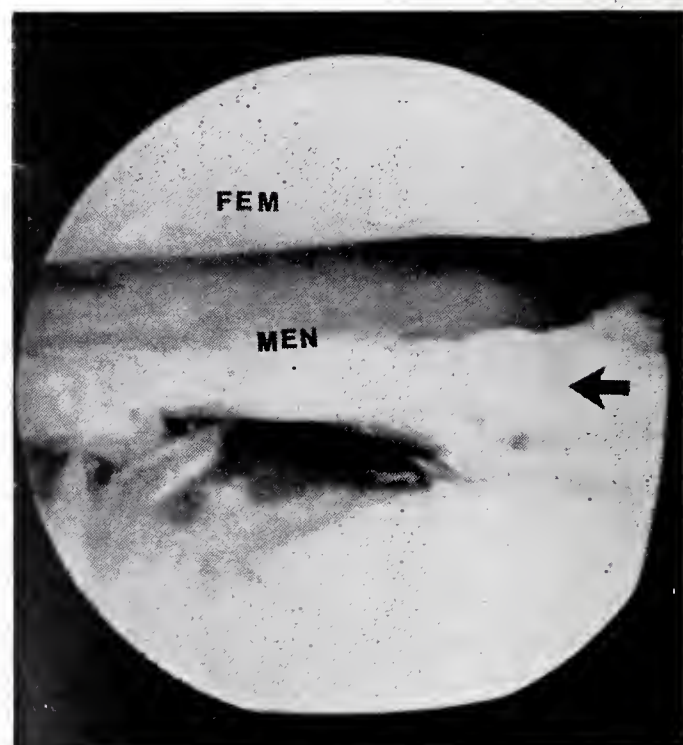


Figure 2.
Arrow points to actual tear in posterior aspect of lateral meniscus (MEN). Femoral condyle (FEM) is seen above meniscus.

Figure 3 shows an arthroscopic examination of a 16-year-old male who had a twisting injury to his knee while playing football. The anterior and middle third of the lateral meniscus lies within the joint and represents a peripheral detachment.

Figure 4 is another arthroscopic view of the same patient demonstrating the posterior horn intact.

Figure 5 shows a portion of the surgical specimen from figures 3 and 4. Although the first

dissection removed a substantial amount of meniscus, seeing the posterior horn directly aided in deciding whether to make an effort to remove any further meniscus.

Figure 6 shows the remainder of the posterior horn removed through a separate incision.

After a thorough inspection of the knee, arthroscopy is terminated. A diagnosis is made by a direct visualization within the knee joint in a noninvasive manner. If arthrotomy is indicated, the knee is re-prepped, draped and surgery is performed. If not indicated, the patient is allowed up and walking but with decreased normal activity the same day. Activities are limited for three days and then resumed. Indeed, the major advantage of arthroscopy over arthrotomy for diagnostic purposes is the complete absence of quadriceps inhibition and the minimal morbidity following arthroscopy.

Complications of arthroscopy are rare. One

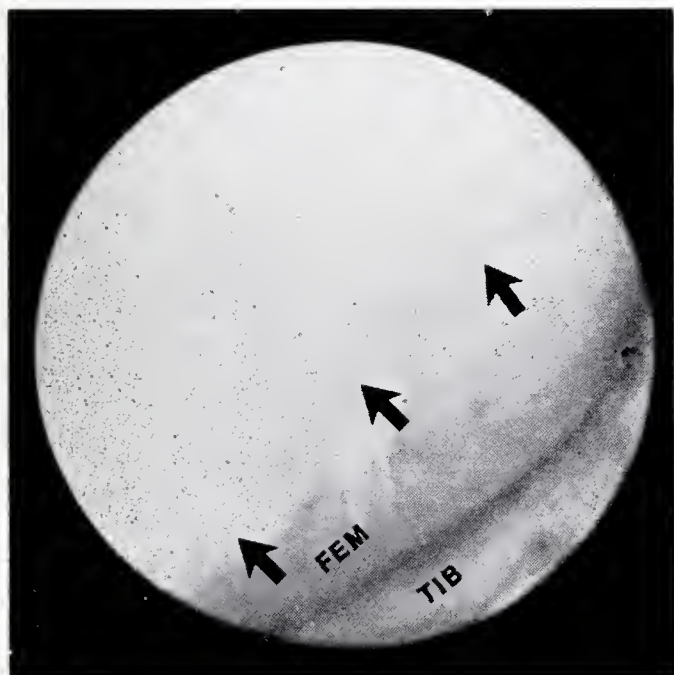


Figure 3.

Arrows demonstrate displaced meniscus. The meniscus should be lying between the femoral condyle (FEM) and tibial surface (TIB).

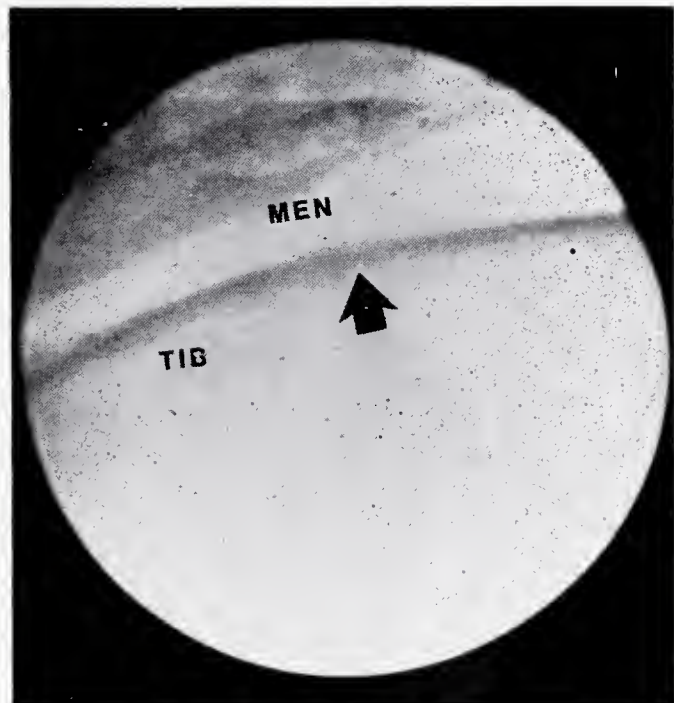


Figure 4.

Intact posterior form of the meniscus (MEN) is shown by the arrow. Tibial surface (TIB) is below.

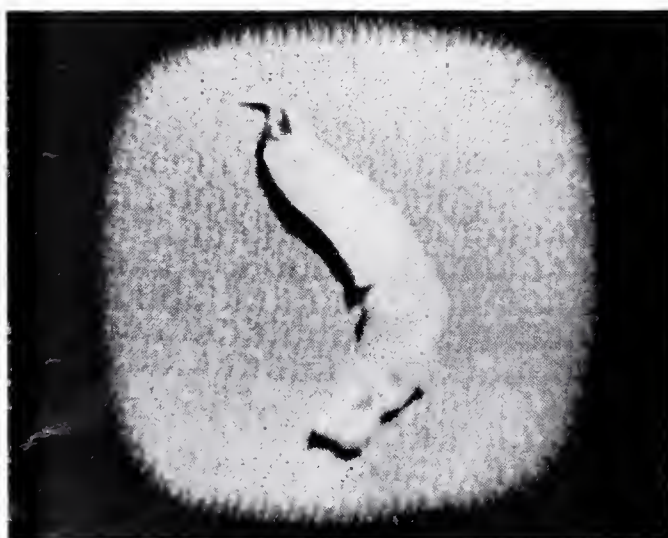


Figure 5.

Surgical specimen of the meniscus obtained with first dissection.

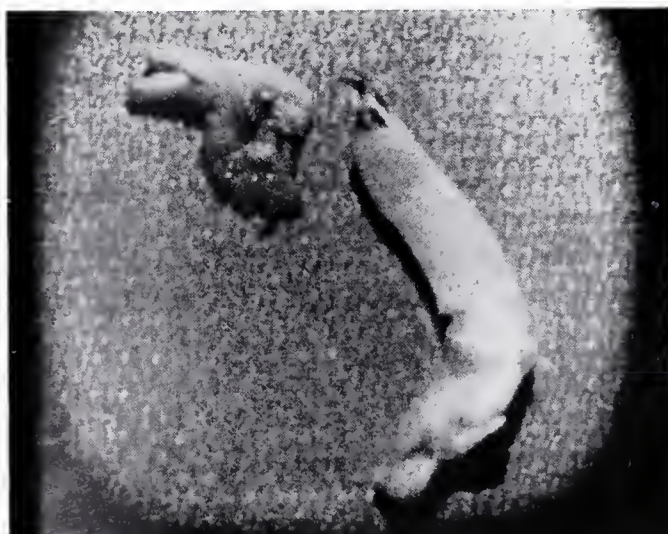


Figure 6.

Remainder of posterior horn removed through a separate incision.

recorded case of infection was found in a rheumatoid arthritic patient who had had intra-articular steroid injections prior to arthroscopy. Hemarthrosis has been recorded on one occasion. Minor degrees of scoring of the articular cartilage is occasionally noticed at the time of examination, however, no long term adverse effects have been reported. Transient infrapatellar anesthesia after arthroscopy of the medial side has been seen.

In the past, arthrotomy was considered the definitive procedure to answer questions of the problem knee. Present day methods provide an effective non-invasive diagnostic procedure, arthroscopy. Indeed, when arthroscopy is correlated with clinical evaluation and arthrography virtually 100% accuracy in diagnosis may be obtained.

BIBLIOGRAPHY
ARTHROSCOPY OF THE KNEE

1. Casscells, S. W.: Arthroscopy of the Knee Joint—A Review of 150 Cases. *JBJS*, 53A: 287, Mar., 1971.
2. Dandy, D. J., and Jackson, R. W.: The Impact of Arthroscopy on the Management of Disorders of the Knee. *JBJS*, 57B: 346, Aug., 1975.
3. Jackson, R. W., and Abe, I.: The Role of Arthroscopy in the Management of Disorders of the Knee. *JBJS*, 54B: 310, May, 1972.
4. DeHaven, K. E., and Collins, H. R.: Diagnosis of Internal Derangements of the Knee. *JBJS*, 57A: 802, Sept., 1975.
5. O'Connor, R. L.: Arthroscopy in the Diagnosis and Treatment of Acute Ligament Injuries of the Knee. *JBJS*, 56A: 333, Mar., 1974.



Clinical and Bacteriological Evaluation of Minocycline

James R. Rasch, M.D.*

Minocycline was found clinically effective in the treatment of a variety of infections in 19 of 24 patients. Initial dosage was 200 mg. followed by 100 mg. twice daily. Of the 27 pathogens isolated, 89% were sensitive to minocycline and 63% to tetracycline. Bacteriological clearing two weeks post-therapy was evidenced in 68%, and the 5 cases not responding clinically were bacteriological failures. Minocycline was well tolerated by most of the patients.

Minocycline,** a chemically modified deviative of tetracycline, is effective in treating many clinical infections.¹⁻⁶ This paper presents experiences with this antibiotic in a variety of infections encountered in general medical practice.

Materials and Methods

Twenty-four patients were treated with minocycline. There were 14 females and 10 males, ranging in age from 13 to 80 years. The conditions treated included: bronchitis (8), pyelonephritis (7), pyelocystitis (1), sinusitis (2), bronchiectosis (1), bronchostenosis (1), paronychia (1), furunculosis (1), laceration and cellulitis (1), and pneumonia (1).

Pathogenic organisms were isolated from all but one patient. These totaled 27 and included: *Diplococcus pneumoniae* (7), *Enterobacter cloacae*, (1), *Escherichia coli* (7), *Hemophilus parahaemolyticus* (2), *Hemophilus parainfluenzae* (2), *Herellae vaginocola* (1), *Klebsiella enterobacter* (1), *Klebsiella pneumoniae* (1), *Pseudomonas aeruginosa* (2), and *Staphylococcus aureus* (3). Sensitivity studies were performed by the tube dilution method on all but three of the 27 organisms isolated from 23 patients; isolations were not obtained from the culture of one patient. Twenty-four organisms (89%) were sensitive to minocycline; one *Klebsiella* and one *Pseudomonas* were of intermediate sensitivity; and one *Enterobacter* was resistant. Seventeen organisms (63%) were sensitive to tetracycline; nine were of intermediate sensitivity [*Diplococcus* (1), *Enterobacter* (1), *Escherichia* (4), *Klebsiella* (2), and *Pseudomonas* (1)]; and one *Pseudomonas* was resistant.

Minocycline dosage was 200 mg. initially followed by 100 mg. twice daily. One patient received two dosage regimens and one three dosage regimens. The drug was administered for

10 to 16 days in 22 patients with 82% receiving medication for 12 days; minocycline was discontinued after three and five days in two individuals because of side reactions.

No other concomitant antibiotic therapy was administered, although various supportive therapy was prescribed for the underlying disease in 13 of the 24 cases.

Results

Minocycline gave a satisfactory clinical response in 19 patients. At the conclusion of therapy, cultures were negative in eight, positive in one (*Pseudomonas aeruginosa*), and not taken in 15. At two weeks post-therapy, cultures were obtained from 19 individuals; three cultures were not taken as the condition had cleared, therapy was changed for one, and one patient was not adequately followed. Two cultures remained positive for *Pseudomonas aeruginosa*, one each remained positive for *Diplococcus pneumoniae*, *Enterobacter cloacae*, and *Klebsiella enterobacter*, and one had acquired a positive culture for *Streptococcus fecalis*. There were 13 patients with negative cultures two weeks post-therapy. Thus 16 of the 22 patients with follow-up (73%) had either negative cultures or had cleared sufficiently so that cultures could not be taken. The five cases with an unsatisfactory clinical response were all bacteriological treatment failures.

Minocycline was well tolerated by most of these patients. Single instances of minor mucous diarrhea and mild nausea occurred in two patients; severe left lower quadrant burning and severe nausea and anorexia necessitated the discontinuance of therapy in five days and three days, respectively, in two patients.

REFERENCES

1. Cappel, R., and Klasterky, J.: Bacteriologic and clinical evaluation of minocycline, a new tetracycline. *Curr Ther Res* 13:227-233, 1971.
2. Frisk, A. R., and Tunevall, G.: Clinical evaluation of minocycline. *Antimicrob Agents Chemother* 1968:335-339, 1969.
3. Hoagland, A., and Smith, L. G.: The evaluation of minocycline in staphylococcus aureus and streptococcus skin and soft tissue infections. *Clin Med* 80:22-23, 1973.
4. Holloway, W. J.: Minocycline in the treatment of urinary tract infections. *Delaware Med J* 42:333-337, 1970.
5. Kulkarni, R. D., Acharya, I. S., Moses, J. M., and Shroff, J. C.: Evaluation of minocycline in the treatment of bacterial skin infections. *J JJ Group Hosp* 15: 107-111, 1970.
6. Satake, K.: Clinical application of minocycline. *Med Consult & New Remedies* 8: 97-100, 1971.

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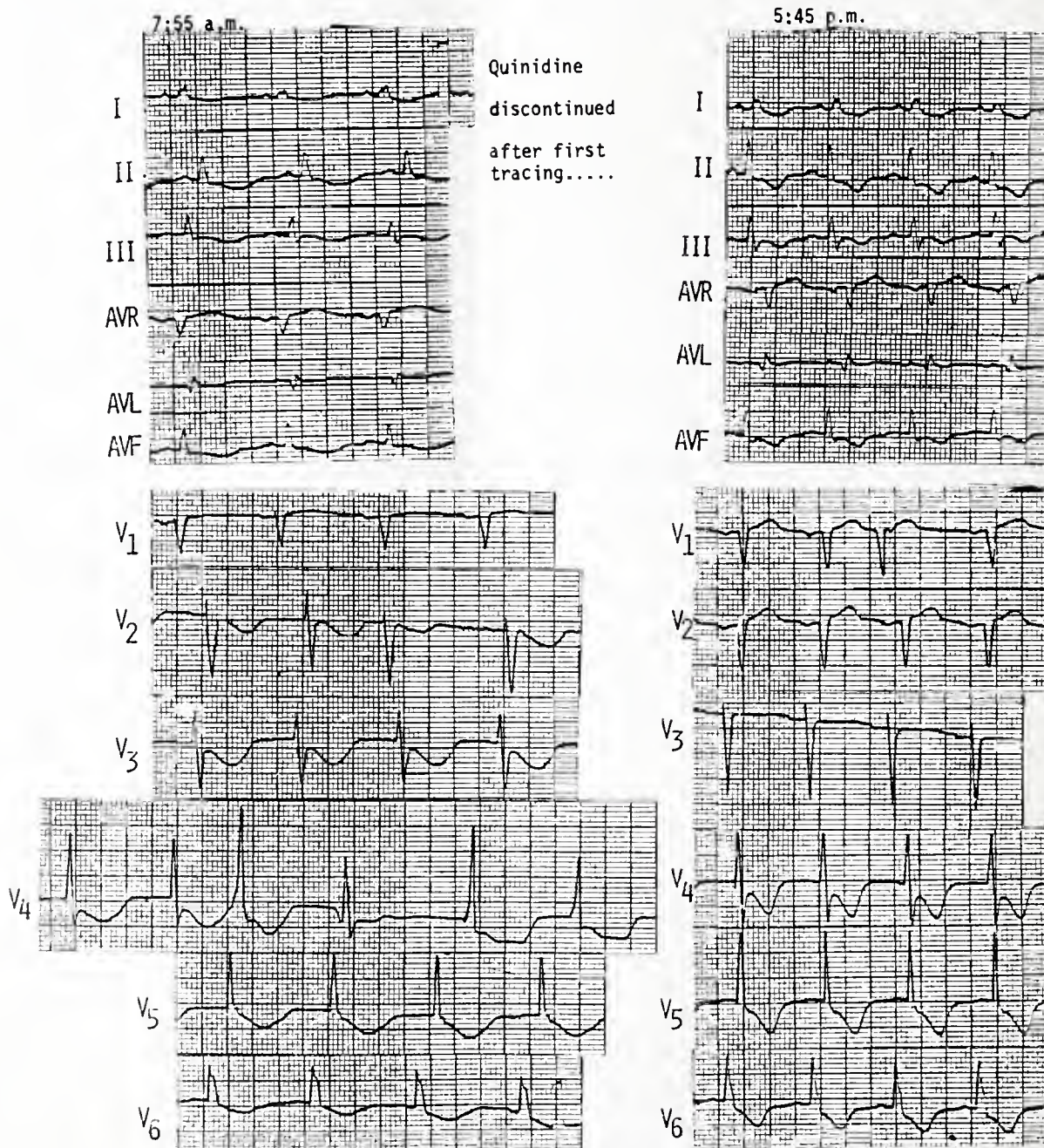
**Minocin is the registered Trademark of Lederle Laboratories, a Division of American Cyanamid Company.



The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 228)

Elderly white female, long history of mitral valve disease on Quinidine pre-op for ectopic extra systoles. Now 3 days post-op, Quinidine restarted @ 300 mgm every 4 hours. 5 doses received.



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Office Orthopaedics

Electrodiagnosis in Peripheral Nerve Injury

R. Barry Sorrells, M.D.*

Preface:

Electrodiagnosis as an office or outpatient procedure will probably never be performed by most doctors. A knowledge of its application, however, is important to every physician and surgeon responsible for the care of the patient with peripheral nerve injury.

The application of electrodiagnostic measures is useful in the evaluation of many neurological diseases and disorders. Lesions at the anterior horn cell, nerve root, plexus, trunk, peripheral nerve, myoneural junction, and muscle fiber level can be diagnosed electrically and certain prognostications made.

It is the purpose of this paper to discuss electrodiagnosis in peripheral nerve injury only.

History:

Luigi Galvani, Professor of Anatomy at the Academy of Bologna, Italy, reported in 1771 that his experiments with neuromuscular preparations of frog legs demonstrated two electrical properties of muscle: (1) Muscles contract when electrically stimulated and (2) an electrical current is produced during muscular contraction.

It is assumed that Galvani observed the electrical counter-part of what is now called the motor unit action potential which is generated by either stimulation or voluntary contraction of the muscle. This motor unit potential is basic to the electrodiagnosis of peripheral nerve injury.

Schiff, in 1851, was the first to observe fibrillation in the denervated muscle of a dog's tongue, 5 days after severing the hypoglossal nerve. He

concluded that the fibrillation he observed was due to involuntary muscular activity and to degeneration of the nerve. He noted that fibrillation ceased with atrophy of the muscle, and that it also ceased when nerve regeneration occurred. Further studies showed him that this phenomenon was common to all muscles deprived of their innervation and here again a basic precept of electrodiagnosis evolved, sixty years later.

Wedell, Feinstein, and Pattle in 1943 reported on the clinical application of electromyography. They found that fibrillation appeared after nerve section in accordance with the size of the animal (the smaller the animal the shorter the time required for the onset of fibrillation). In man they noted that fibrillation began 14 to 21 days after denervation.

Neurophysiology:

The anatomic motor unit is the basis of electrodiagnosis. It is composed of the anterior horn cell, its axon and terminal branchings, and all the muscle fibers which it innervates. The number of muscle fibers per motor unit varies from a few (in extrinsic eye muscles) to several hundred (in a large limb).

The activation of the motor unit is an "all or none" fashion. An electrical impulse passes down from the anterior horn cell and follows the axon and its twigs to the myoneural junctions, where liberation of a chemical mediator initiates a wave of excitation along each muscle fiber. The summated muscle fiber action potentials represent the motor unit action potential.

A needle electrode placed in the muscle can pick up, amplify, and display by means of an

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oscilloscope and aural speaker, this action potential. The electromyograph allows one to observe and measure this potential.

Instrumentation:

The basic components of an electromyograph are: A set of electrodes, a pre-amplifier, an audio-amplifier and loud speaker, an oscilloscope, and a physiologic stimulator for nerve conduction studies. Recording equipment includes a magnetic tape recorder and a camera. A storage-type oscilloscope screen is another means of more detailed study by retention of the potential on the cathode ray tube. Electrodes are of various sizes and types, e.g., surface, intramuscular, monopolar, bipolar, and coaxial. Some of the newer electrodes are Teflon coated to decrease friction and resultant pain with insertion.

The Electromyogram:

Prior to electromyography, a history is taken and physical examination of the pertinent involved systems is done. This usually involves a short, but systematic neurologic examination. Surface skin electrodes may be used, but more commonly the previously sterilized needle electrode is introduced through the antiseptically prepared skin into muscle tissue. As this is done the examiner watches the oscilloscope and listens to the audible signal over the loud speaker. The patient is asked to contract the desired muscle to insure that electrode placement is in the proper muscle. Adequate exploration of each muscle to be examined may require 5-20 needle advancements and relocations at several places within the muscle.

The muscle is examined under several conditions:

(1) At rest: When the normal muscle is at rest, there is electrical silence. As will be discussed later, abnormal potentials are recorded with abnormal muscle at rest.

(2) Insertional activity: As the needle is moved, there occurs a burst of electrical activity which stops when the needle movement stops. The duration of the burst is dependent somewhat on the character of the needle insertion but is usually 10-30 milliseconds. This results from mechanical stimulation of the muscle fibers. The absence of insertional activity indicates that there are no functioning muscle fibers or that the electrode is not in muscle tissue.

(3) Minimal muscle contraction: Single motor unit action potentials are elicited by having the

patient minimally contract the desired muscle while moving the needle as closely as possible to the firing unit. The sound is louder and the amplitude increases as the tip of the electrode nears the activated unit. It is important to note the form, amplitude, duration, rhythm, and frequency of firing.

(4) Maximal muscle contraction: To avoid discomfort to the patient with excursion of the muscle and consequently pulling muscle tissue across the needle, isometric contraction is encouraged. The interference pattern (i.e. the pattern of multiple normal motor units firing simultaneously) is normal when the face of the oscilloscope is practically blotted out with motor unit action potentials. The normal motor units begin activating at five per second and increase their rate of firing with the increasing force of contraction. Maximal rates of firing are from thirty to fifty per second.

A. The Normal Motor Unit:

It is to be re-emphasized that the normal muscle at rest produces no electrical activity once the needle has been inserted into the muscle tissue. The normal motor unit occurs with contraction or stimulation of the muscle tissue. There is a wide range of variability in wave form, duration, amplitude, and frequency according to the strength of the stimulus, the position of the needle, and the individual muscle being tested. The frequency of discharge depends upon the strength of the stimulus or upon voluntary contraction. It should not be concluded that the observed amplitude is a measure of muscle strength however, as the electromyograph is not capable of registering the strength of contraction per se.

Voltage:	100-2,000 microvolts
Duration:	2-10 milliseconds
Wave Form:	2-4 phases; usually triphasic
Frequency:	1-60 per second
Sound:	clear, sharp, thumping

B. Abnormal Potentials in Electromyography:

(1) Fibrillation Potentials:

The motor nerve and the skeletal muscle form a physiologic unit. Both must be in a normal physiologic state to provide voluntary function. The motor nerve has two basic controls on a voluntary muscle system; the first is inhibitory control for balance of function, the second is living control (trophic control). When the muscle is deprived of its motor nerve it also loses its controls. The denervated muscle then becomes

hyperirritable to the stimulation of the exploring electrode. Thus, denervated hyperirritability is manifested by two main types of mechanically induced denervated activity: (1) positive sharp denervation activity and (2) mechanically induced fibrillation. In order to compensate for the loss of its living control, the denervated muscle develops its own spontaneous activity for survival which is known as spontaneous fibrillation of denervation. Thus, denervated muscle is characterized by three main types of denervated action potentials: (1) induced positive sharp potentials, (2) induced fibrillation potentials and (3) spontaneous fibrillation which constitutes the potential of denervated activity. Denervation activity is recorded only when voluntary muscle fibers have been deprived of their motor nerves and degeneration has taken place. Since muscle fibrillation cannot be seen (except in the tongue) because of the skin covering, EMG electrodes are placed into the muscle and the potentials can thus be seen, heard, and recorded. The fibrillation tells only that there is axon interruption but does not reveal the cause. Nevertheless, the distribution of the fibrillation potentials leads to localization of the lesion. The cause may be infectious, toxic, traumatic, neoplastic, degenerative, vascular, congenital, or compressive. The affection can be in the anterior horn cell, root, plexus, or peripheral nerve.

In man, spontaneous fibrillation appears in the sacrospinalis muscle fourteen days after denervation, whereas, it takes eighteen to twenty-one days to appear in the limb muscles. It continues as long as healthy contractile muscle tissue survives and can be maintained if a denervated muscle is not completely immobilized for a prolonged period and is given some physiotherapeutic stimulation. As time goes on, the fibrillation diminishes in amplitude and frequency. As fibrosis of the muscle occurs the amount of fibrillation activity recorded is decreased proportionally. Fibrillation denotes healthy muscle, though denervated, is still present and thus serves as a guide to surgical reconstruction for nerve transplantation, neurolysis, suture, or graft. Whereas the electromyograph is frequently non-specific as a diagnostic instrument, the recording of fibrillation potential is a very definite diagnostic and prognostic sign. This particular potential is perhaps the most important to the orthopedic surgeon.

Voltage: 10-600 microvolts (usually less than 100 microvolts)
 Duration: 1-2 milliseconds
 Wave Form: mono, and diphasic spikes
 Frequency: 2-30 per second
 Sound: High pitched (rain-like)

(2) Polyphasic Potentials:

The EMG may reveal motor units which have a much more complex shape than that which has been described under normal motor unit potentials. This is the so-called polyphasic or complex potential. Polyphasic motor units vary in voltage up to 5,000 microvolts, and in duration from two to twenty-five milliseconds. Among the clinical conditions in which polyphasic motor units occur are those involving incomplete degeneration or regeneration of the nerve supply to a muscle, and primary muscle disease. If this polyphasicity occurs in a muscle which has previously demonstrated widespread fibrillation potential of denervation, such polyphasic potentials are often designated as "nascent" motor units. Characteristically, nascent units are of low voltage and demonstrate four or more peaks as an expression of their polyphasicity. In normal individuals fewer than 10% of motor unit action potentials are polyphasic. As a rule it should be remembered that a few polyphasic motor units may be of significance only when accompanied by a degree of fibrillation potentials as well. Neuroanatomically, these polyphasic potentials probably result from differences in conduction times over the terminal axon branches, synchronous but not simultaneous firing of multiple motor units, repetitive discharge of a part or all of a motor unit, or loss of some muscle fibers in a motor unit so that the anatomic dispersion of the remaining fibers does not permit smooth summation.

Voltage: 200-5,000 microvolts
 Duration: 2-25 milliseconds
 Wave Form: 4-25 phases
 Frequency: 2-30 per second
 Sound: rough, rasping, or rattling

Other abnormal potentials such as the giant, high frequency, myotonic, myopathic, and abnormal fasciculation types may occur. These, however, are more commonly seen in the various neurologic diseases. Those described, the normal motor unit, fibrillation, and polyphasic potential are of most importance to the study of peripheral nerve injury.

Nerve Conduction Studies:

As has been mentioned, the EMG can readily distinguish neuropathic diseases (those affecting the lower motor neuron) from myopathic diseases (those affecting the muscle fiber). Frequently, it is important to distinguish those conditions affecting the axon primarily from those affecting the anterior horn cell. For example, poliomyelitis, progressive muscular atrophy (amyotrophic lateral sclerosis), and myelitis are various conditions affecting the anterior horn cell. Viral encephalomyelitis (Guillain-Barre syndrome), diabetic neuropathy, progressive neuropathic muscular atrophy (Charcot-Marie-Tooth disease), peripheral nerve injuries, localized neuropathy, and toxic neuropathy are among the many conditions which affect the axon primarily.

(1) Motor Conduction:

The differential diagnosis of these two groups of conditions is frequently quite difficult with the EMG alone. One way to distinguish between them would be to detect segments of altered excitability along the axon as a result of disease in this part of the lower motor neuron. This can be done by measuring the conduction velocity of the motor fiber, since it is usually reduced in conditions affecting the axon. Conduction velocity of normal human motor nerve varies from 40 to 70 meters per second. In newborn infants the conduction velocity is about 25 meters per second and apparently reaches adult values when the child is 2 to 5 years of age. The conduction velocity of motor nerves apparently is related to many factors, only some of which are known. The best known factor is the diameter of the axon, the velocity varying in almost direct proportion to the diameter. Some other factors which affect the nerve conduction velocity are the temperature, age of the patient, local environment of the nerve, and degree of myelination. Convenient peripheral nerves for this examination are the median and ulnar nerves in the forearm and the peroneal and posterior tibial nerve in the leg.

If, for example, the conduction velocity of the ulnar nerve in the forearm is to be determined, a distally innervated muscle such as abductor digiti quinti is selected, and either two disc skin electrodes are affixed to the skin, or a needle electrode is introduced into the muscle. The electrodes are connected to the input of the amplifier and a ground is established between

the adjacent skin and the machine. The peripheral nerve is stimulated at two points, at the wrist and at the medial epicondyle of the elbow. The stimulation is gradually increased in voltage until the threshold of excitability of the nerve has been exceeded and an action potential is triggered off down the nerve and observed on the oscilloscope screen. This time interval then not only includes the time of transmission down the nerve, but the delay through the motor end plate into the muscle as well, and is called the "latency". If the distance between the two points of stimulation is known, the velocity of nerve conduction may be calculated by dividing this distance (in meters) by the difference in the conduction delay (in seconds) between the elbow and wrist.

In normal subjects, the mean for ulnar nerve motor conduction velocity is 55.1 ± 6.4 m/sec. Latency of the short segment at the wrist generally is not greater than 5.0 milliseconds. When this technique is applied to the median nerve, the latency of the "short segment" represents the time taken to traverse the carpal tunnel. In normal individuals, this also does not usually exceed 5.0 milliseconds, but may go as high as 26 milliseconds in patients with severe nerve damage due to carpal tunnel compression. In these cases, the observed action potential is, rather than bi or triphasic in appearance, highly polyphasic and irregular.

The technique described may, with appropriate modifications also be applied to radial, common peroneal or tibial nerves anywhere along their courses and branches, and ranges for normal velocity have been calculated. The normal peroneal nerve conduction velocity has been determined to be 50.1 ± 7.2 ; the median nerve 53.0 ± 6.4 ; and the posterior tibial nerve 50.2 ± 9.3 m/sec.

(2) Sensory Conduction:

Sensory nerve conduction velocity may be determined by use of the same basic equipment; but in this case the nerve action potential is measured directly over the nerve. The amplifier must be used at maximal gain because these action potentials are less than 15 microvolts, as opposed to 1,000 microvolts for motor nerve. In the case of the median nerve at the wrist, the same skin pick-up electrodes are placed over the nerve proximal to the carpal canal. Stimulating electrodes are placed over the index finger so that the digital nerve (purely sensory) may be stimu-

lated by the cathode at the web space and the action potential so generated picked up from the nerve proximally. In normal individuals, this sensory conduction time through the carpal tunnel rarely exceeds 5.0 milliseconds. In pathological states it does not increase above 7 milliseconds, beyond which the action potential diminishes in amplitude and finally disappears. The technique may similarly be adapted to other and longer segments of nerves, and conduction times are generally only slightly less than those of the corresponding motor nerves.

Sensory conduction velocity is especially useful in determining the integrity of purely sensory nerves, in evaluating diabetic and other neuropathies and in general plays a part in the detection of earlier and minor degrees of nerve impairment.

Summary:

Electrodiagnosis involves the study and record-

ing of the intrinsic and induced electrical potential of skeletal muscle. Electromyography (EMG) diagnostically utilizes the electrical potential of muscle both at rest and under conditions of stimulation. A needle or skin electrode in or over muscle receives this electrical potential which is amplified and displayed by oscilloscope and loud speaker. The characteristic wave forms and sounds may be recorded by magnetic tape and by photographic means. Typical forms and sounds allow certain diagnoses to be made.

Nerve conduction (NC) studies allow diagnosis by measuring the rate of conduction along the stimulated nerve, either to a distal muscle or along a segment of the nerve.

Electrodiagnosis is a valuable "Office Orthopedics" procedure to the physician and surgeon responsible for the care of the patient with peripheral nerve injury.





PUBLIC HEALTH AT A GLANCE

Present Status of Local Health Department Housing

E. J. Easley, M.D., M.P.H.,* and Margaret Reed, M.P.H.**

Prior to 1940, there were no adequately housed local health departments within the seventy-five counties of the State. All existing units invariably were housed in cramped quarters provided by the county judges. These quarters usually were located in the basements of old bank buildings or in the basements of courthouses. Several were located in the attics or on the third floor of the courthouses.

Since 1940, local units of government, the county quorum courts and city councils have shown more and more interest in local health department housing. This interest grows with the improvement and efficiency of public health services. The counties and cities always have been deficient in funds necessary to provide even minimal adequate housing and necessities for the large family of public service agencies, including the local health departments.

Act 918 (Section 20) of 1975, authorized the Arkansas Department of Health to provide all local health department personnel salaries and travel, thereby, relieving the local units of government of their responsibilities in sharing these obligations with the State. The intent of Act 918 was also for the local units of government to, at last, provide adequate housing, office expenses, utilities and equipment. Act 918 has been a boon and a great aid to the counties and the State in this area of public health. The county judges, especially, are elated over the provisions of the Act and are sincere in providing improved facilities for local health departments.

Several county health departments still are on a list of units with inadequate and/or sub-standard housing. Some counties have provided adequate quarters, several are ready to build new buildings and in some counties, judges are trying to find where to get matching funds to con-

struct new buildings, or redecorate and renovate present available spaces.

In one county where expectant mothers and hypertension patients had to walk up three flights of stairs, the county health department now is located in new quarters with the entrance on street level. Presently, in one county, the nurse has to check blood pressures in one of the vaults in the courthouse on the first floor.

Inadequacy of storage space for medicine and equipment is prevalent. One county has used all available space and now is using the bathroom for storage space.

After getting a new hospital, one county has the health department located in the old hospital building. After renovations were made, the facility has pleasing, cool colors in the offices, well kept grounds and adequate parking space.

Some of the common problems encountered by health personnel are stairs, lack of adequate space, no privacy to talk with patients, inadequate storage and waiting room space.

Most of the planned new housing will be built on hospital grounds. The buildings may house other county agencies, particularly the mental health centers.

As of August 1, 1976, only six (6) local health departments are housed in unacceptable and inadequate quarters.

The county judges and members of the quorum courts are to be congratulated for taking action to secure more adequate housing for the county health departments.

CORRECTION

Table 1 accompanying the article "The New Anti-Inflammatory Agents: Phenylalkanoic Acids" in the August 1976 issue of the Journal contained an error. The dosage of Naproxen should be corrected to read 250 milligrams b.i.d.

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EDITORIAL

Concerning the Heart

Alfred Kahn, Jr., M.D.

The matter of sudden death of babies called "sudden infant death syndrome" has been a topic of speculation for many years—the apparently healthy infant found dead in the crib. Various causes have been ascribed including infection, glandular dysfunction, metabolic disease, strangulation, etc. There are probably some cases in the vast number of sudden infant death syndrome which fall into each one of these categories with occult inrection being perfectly obvious at post-mortem. However, the bulk of these cases fall into an "unknown" etiologic category and it is this group which is receiving great attention. In the January, 1976 issue of *Circulation* there is both an editorial and an article on sudden infant death syndrome.

The editorial by Thomas N. James, himself an investigator in this field, discusses several points. The most important is the developing anatomy of the conduction system of the human infant heart. Thomas and others have described that the atrio-ventricular node and the Bundle of His undergo a molding phase, which term and implication seems to be a disputed area. Thomas says that to him molding means "that cells are gradually replaced in an orderly, programmed way"; he does not imply massive cell death or extensive necrosis. At question is whether this molding is pathological or normal developmental change. The importance of this debate is overshadowed by the significance of what occurs in its presence, regardless of the cause being developmental or pathological: namely, electric instability of the heart which could lead to a fatal arrhythmia.

In the same issue, Lie, Rosenberg, and Erickson present a paper on the examination of 50 infant hearts, 26 were sudden unexplained deaths, and 24 were explained deaths. The hearts

were studied histologically. A careful review of the abnormalities described by Lie, et al, indicates that in his experience, there is no distinctive pathologic finding in the heart of infants with the sudden death syndrome. Abnormalities were found in equal numbers of the hearts of infants with explained and unexplained deaths.

The diagnosis of disease can be said to be in three stages: speculative, presumptive, and established. The diagnosis of coronary artery disease in many instances is presumptive and not established unless a coronary catheterization is performed. Many cases of chest pain are misdiagnosed until catheterization is performed. However, coronary artery catheterization is not an innocuous procedure. Bourassa and Noble have reviewed 5,250 cases of percutaneous femoral catheterization to determine the complication rate (*Circulation*, Volume 53, page 106, January, 1976). The authors had a mortality rate of 0.23%. They do not feel that they can get the rate to 0.1% as suggested by some investigators. The patients who had relatively normal left coronary arteries had no serious complications. Some of the complications encountered include myocardial infarction, coronary artery dissection, coronary artery embolism, pulmonary edema, ventricular fibrillation and other arrhythmias, femoral thrombosis, cerebral ischemia, and reaction to dye stuff. Unfortunately, these complications are more prone to occur in the sicker patients.

One class of cardiac disease that is often undiagnosed is that of myocarditis. Some types of myocarditis are viral, some rheumatic, some even bacterial—and there remain some cases that have to be classified as idiopathic. Adesanya, Goldberg, Thorp, Young, and Abelman of Boston have studied "Heart Muscle Performance After

Experimental Viral Myocarditis" (*Journal of Clinical Investigation*, Volume 57, page 569, March, 1976). This study was stimulated by the thought that perhaps idiopathic cardiomyopathy was in some instances anteceded by a viral myocarditis. To this possibility Adesanya et al infected 12 day and 22 day old hamsters with coxsackie virus. Viremia occurred. The animals were later sacrificed. The myocardial muscle from these animals showed evidences of acute infection with signs of inflammation and focal necrosis; later the acute myocardial changes as inflammatory exudate subsided. Physiologically, the myocardial contractility remained depressed for 90-180 days or more. Compliance was decreased. The authors concluded that the damage from viral myocarditis lasts well beyond the inflammatory phase and might play a role in subsequent heart failure.

Injured myocardial muscle does not bind digitalis preparations well. Beller, Conroy, and Smith induced ischemic myocardial injuries and studied the alterations in myocardial sodium and

potassium activated ATP phosphohydrolase enzymes known as $(Na^{+} + K^{+})$ -ATPase. They produced anterior infarctions in 34 dogs by snaring and then reperfused the injured area. The $(Na^{+} + K^{+})$ -ATPase was of particular value as it figures in two important functions: it is responsible for the active transport of Na^{+} and K^{+} ; after injury K^{+} is lost from the heart muscle cells and Na^{+} enters. Furthermore, $(Na^{+} + K^{+})$ -ATPase binds digitalis preparations. After injury, the authors showed that $(Na^{+} + K^{+})$ -ATPase did not bind radioactive ouabain well. It was due to three factors. Firstly, there was decreased regional blood flow. Secondly, they postulated that ischemia changed the heart muscle milieu. Lastly, there was reduced ouabain binding by $(Na^{+} + K^{+})$ -ATPase. If there is reduced $(Na^{+} + K^{+})$ -ATPase activity, then it stands to reason that there will be altered $K^{+} + Na^{+}$ ion transport in the myocardial cell and ultimately faulty energy release. This paper is important in that it relates basic cellular chemistry to myocardial function.



MEDICINE IN THE



THE MONTH IN WASHINGTON

The Medicare-Medicaid cost containment bill proposed by Sen. Herman Talmadge (D-Ga.) could have harmful consequences on patients, the American Medical Association has told the Senate Finance Health Subcommittee.

The measure, introduced a year ago by Talmadge, was considered at a one-week hearing by the Subcommittee which the lawmaker heads. The wide-ranging bill contains scores of proposed changes in Medicare and Medicaid and calls for a major reorganization of the Government's health programs.

"In view of the continuing inflationary pressures in our economy, we are indeed sympathetic with the intent of this legislation to seek limitations upon the increasing costs of these health programs," testified Edgar T. Beddingfield, Jr.,

M.D., Chairman of the AMA's Council on legislation. He added, however, that "arbitrary curtailments of increases in costs will have natural consequences with respect to maintaining quality and availability of care. Each element cannot be treated separately without expectation of impact on the others."

"Taken as a whole, the bill should not be enacted as it would not be in the best interests of Medicare-Medicaid patients," said Dr. Beddingfield.

HEW Secretary David Mathews, testifying earlier, had said he was not confident the overall bill would be as effective as its backer hoped. He said he had "preliminary reservations." HEW's formal position on the bill will not be made "until the next budget-legislative cycle," Mathews said, adding there isn't time this year

for Congress to complete consideration of the measure.

While there is little chance of the bill advancing in this Congress, Talmadge declared in an opening statement he hoped the hearings would provide the basis "for timely Congressional action."

Various restrictions, limitations and changes in reimbursement for hospital and physician services are among the controversial features of the bill.

One provision calls for creation of a "participating physicians" category under Medicare which physicians would either accept on assignment all Medicare cases, or none. "Participating" physicians would be offered certain inducements such as simplified and speeded-up billing procedures. After asking why more efficient payment procedures cannot be put into effect regardless, Dr. Beddingfield said "the fact that inducements are necessary in order to buttress a sagging assignment rate should cause an examination" of the current "insufficient reimbursement rate (which) is the major deterrent to assignments."

The purpose of the disputed provision would be better accomplished by "making the reimbursement level under that system more acceptable and in accord with usual and customary practices," said the AMA official.

"The provision on 'hospital associated physicians' exceed the proper bounds of federal action," Dr. Beddingfield said. "It is not the role of the federal government to specify elements which constitute the practice of medicine generally or in any of its specialty fields. Nor should federal legislation, by statutory definition, attempt to divide or specify the role of the physician in the practice of medicine. Accordingly, the provisions as to anesthesiology services and pathology services should not be adopted."

He added that the section entitled "hospital associated physicians" is "misleading" and would apply to the entire spectrum of physicians' services in the Medicare program. "We strongly object to any application of any provision which would limit recognition of what constitutes physicians' services in the communities across our nation. This section would disregard normal professional relationships and establish as the proper recognition of certain physicians' income only that level which would be received by a

salary. We find this premise untenable."

The bill's ban on certain contractual relationships between hospitals and professionals was opposed by the AMA. "While some individual contracts are not to be condoned," Dr. Beddingfield said, "hospital management and physicians should be free to enter in various arrangements in the interests of patient care." Hospital management and physicians must remain accountable to the public, but the action of prohibiting any percentage arrangement" should not be countenanced."

The AMA spokesman said the bill carries "a very strong potential for a continued shifting of segments of health care costs to private patients—costs which are properly the obligation of the federal program on behalf of its beneficiaries. When this shifting occurs, it not only has ramifications relating to availability of care for Medicare-Medicaid patients, but it also affects quality of care for all patients.

* * * *

Under new procedures announced by the Health, Education and Welfare Secretary, HEW must now consult broad segments of the public before it prepares controversial regulations mandated by Congress or for compelling administrative need.

The issuance of regulations by HEW over the past few years has become a subject of considerable dispute, with court challenges filed by the American Medical Association and others contending that the government had gone beyond the intent of Congress in carrying out the law.

"For far too long HEW has gone to the public in these situations only to tell them what it intends to do. From now on our first step will be to ask the people of this country what they think we should do," HEW Secretary David Mathews said.

The Secretary said he believes strongly that the regulation process is HEW's "most intrusive channel into people's lives."

HEW will notify the public through town hall-type meetings, advertisements, public service announcements, news releases, professional and service organizations, mailings, the Federal Register, and HEW's 10 regional offices.

Following are the steps to be taken by HEW in drafting important regulations:

★ Publication of a notice of intent to propose regulations which would place issues and

options before the public and invites comment.

- ★ If the Department has a preference, it will be stated clearly at the outset—an innovation.
- ★ Publication in the Federal Register of a notice of proposed rule-making—a proposed regulation—which takes into account the requirements of the law, Congressional intent, the public's views, and the professional expertise of HEW.

The public normally will have 45 days to comment following publication of both HEW's intent to regulate and its proposed regulations. Each of these documents will include the name of a person in HEW who can be contacted for clarification or further information.

HEW also said it plans training sessions for department regulation writers so that regulations are written in clear, concise English.

* * * *

The AMA has urged the House Commerce Committee to make major changes in legislation to bring the nation's clinical laboratories under tighter federal control.

One of the most controversial provisions of the Clinical Laboratory Improvement Act (CLIA) as approved by the Commerce Health Subcommittee prohibits Medicare reimbursement for labs under any rental or lease which involves a percentage arrangement. "We particularly object to this section because it was never discussed or considered during public hearings," the AMA said in a legislative alert to constituent bodies.

"This section has far reaching contractual considerations involving physicians and hospitals," the AMA said. "In the name of openness and fairness the matters covered in this section should be dealt with separately and we ask that this section be deleted."

This disputed provision, which also covers Medicaid and Maternal and Child Health reimbursement, is similar to a key section of the Talmadge bill in the Senate.

The AMA singled out two other provisions for special concern in the CLIA bill.

One allows an exemption for a laboratory in a physician's office but only where physicians actually perform all tests and procedures in connection with the treatment of their patients. "With such a restriction, laboratories operated in physicians' offices would be forced to close

down," said the AMA. "Existing law exempts laboratories operated by physicians where tests are done personally or through employees solely as an adjunct to the treatment of their own patients. This exemption should continue."

The other provision deals with revocation of a license for a number of activities, one of which is finding that the owner or operator of a laboratory has engaged in a billing practice which creates a discriminatory effect between patients reimbursed, in whole or in part, under programs receiving federal funds and patients who are not so reimbursed. "This provision apparently seeks a uniformity of fees for services by the laboratory," said the AMA. "This provision could in fact require a raising of fees under federal programs and thus would increase federal program costs. Furthermore, any provision that would state that the prohibition would be against a charge higher for a federal program than for a non-federal program would still be objectionable."

A dangerous precedent is established where the licensing authority (the HEW Secretary) can revoke a license based on fees charged to programs administered by him."

* * * *

House and Senate conferees have still not met to reach agreement on the crucial Health Manpower Bill.

The major issue to be resolved is federal controls over residencies. The House Manpower Bill approved last fall was stripped of a residency control feature on the floor of the House. A rigid and sweeping Senate control plan over allocation of residencies was watered down substantially on the floor of the Senate but the final Senate bill requires medical schools to set aside minimum percentages of residency programs for "primary care" slots.

Also important are the "payback" provisions for medical students. In this respect, the House bill is more stringent than the Senate bill. The House would require, starting in 1985, that medical students pay back, either in money or service in shortage areas, that portion of the individual student's yearly medical education subsidized by the federal government in the form of capitation subsidies to the medical schools. At present, this runs about \$2,000 a year.

The comparable Senate provision requires medical schools starting in 1978 to assure that

35 percent of their first-year places are available for students who, prior to admission, have submitted applications for National Health Service Corps scholarships and have agreed to accept such scholarships.

Both bills contain provisions designed to reduce the inflow of foreign medical graduates.

The major new thrust in the two bills, in addition to the extension of capitation aid to medical schools, is to produce more physicians in the "primary care" category and to get more physicians into shortage areas.

The Administration has had strong reservations about provisions in both bills, but as they stand now it appeared unlikely the legislation would encounter a Presidential veto.

* * * *

Food and Drug Commissioner Alexander Schmidt, M.D., believes Congress must shoulder much of the blame for the controversy swirling around his embattled agency. Dr. Schmidt, who is leaving the FDA in December to become Vice Chancellor for Health Services at the University of Illinois, made clear in an interview with *AM NEWS* that he believes the persistent critics of FDA on Capitol Hill, in the press and television, and among consumer groups are unfair and damage the agency's morale and efficiency.

He told *AM NEWS* the FDA has been driven into a "conservative" position in approving new drugs because of the pressures from Congressmen who believe the agency isn't tough enough with drug companies. Congress never calls a hearing when a drug is rejected, but always calls one when a drug is approved, he said, implying that a climate of fear of Congressional retaliation has pervaded FDA.

Dr. Schmidt also said he thinks the medical profession could be more supportive of FDA's position and verbally less critical.

* * * *

Students receiving federal scholarships and loans should be given a tax break, the AMA has told Congress.

Failure of Congress to continue previous exemption of such aid from taxation is proving a financial hardship on students and threatening to discourage service to the public in areas where there are shortages of medical manpower and facilities, the AMA said.

The exemption lapsed on certain student loan programs in addition to scholarship aid from the

Armed Forces and the Public Health Service including the National Health Service Corps.

In a letter to the Senate Finance Committee, AMA Executive Vice President James H. Sammons, M.D., noted that with the expiration of the tax exemption, about 5,000 students in the Armed Forces Health Professions Scholarship program and about 2,700 students currently in the National Health Service Corps scholarship program are now required to pay income tax on their scholarship funds, which may include tuition, educational fees and stipends.

"The imposition of the tax on such financial assistance will impose a significant financial burden for many students now receiving such scholarships and act as a deterrent to acceptance of scholarships which carry a service commitment," Dr. Sammons said.

He pointed out that the AMA "has long advocated the use of financial incentives to encourage the development of an adequate supply of physicians to provide needed health care services."

To impose a tax on scholarships under such circumstances would defeat the purpose of the scholarship, Dr. Sammons said. "Financial obstacles should not be placed in the path of assisting those who, being qualified for medical education, have accepted a scholarship and agreed to a service commitment."

"This situation deserves the immediate attention of Congress," Dr. Sammons said.

* * * *

VIETNAMESE DOCTORS SEEK ARKANSAS SPONSORS

University of Arkansas College of Medicine administrators have less than a month to locate communities wishing to sponsor fully qualified Vietnamese physicians for one year of postgraduate training in the State of Arkansas. These physicians are fairly fluent in English and have passed the Education Commission on Foreign Medical Graduate's examination.

The State of Arkansas has invested some \$165,000 in the training of these physicians. If they are not located within the State very soon, they will be forced to locate elsewhere. There are no further State funds available to support them and sponsors are needed to cover a \$11,000 per year stipend each. They are requesting that they be located in pairs rather than individually. In return, they will agree to practice in those spon-

soring areas for a minimum specified period of time.

"Many of these physicians have been contacted by other states with unfilled, salaried residency positions," said Dr. Thomas A. Bruce, Dean of the Medical College at the University of Arkansas Medical Sciences in Little Rock, Arkansas, "and they feel a deep commitment to Arkansas and want to practice here."

Those interested in sponsoring these physicians should contact Mr. Bill North, Assistant to the Dean for Community Medical Affairs, UAMSC, Markham at Hooper Drive, Little Rock, Arkansas 72201, or call 661-5620.

MEDICAL AND MENTAL HEALTH CLINIC FOR MOUNT IDA

Dr. James Davis has pioneered a new type of comprehensive medical care for the patients in Mount Ida, Arkansas, and the surrounding counties. A Medical Clinic has been built for the purpose of taking care of both the physical and the mental illnesses of the residents in that rural community. Dr. Davis estimates that at least 10 percent of his patients in Montgomery County come into his office for treatment of complaints which are, actually, emotional problems rather than medical. His practice serves Clark, Garland, Hot Spring, and Pike Counties, and he sees from 35 to 75 patients per day. Dr. Verlin Anthony, chief psychologist of the Ouachita Regional Counseling and Mental Health Center, is the staff psychologist. Dr. Anthony serves at the clinic on Monday of every week.

The mental health center, funded by Federal, State, and local monies, charges varying fees for its services, depending on the patient's income and ability to pay. Montgomery County has the lowest median family income and per capita income with thirty percent of the population having less than poverty level. Almost 25 percent of the population is 60 years of age and older, and Dr. Davis estimates that half of the practice is geriatrics. Mount Ida is 34 miles east of Hot Springs.

HOW LONG DO YOU WAIT TO SEE THE DOCTOR?

The national average of time spent waiting to see the doctor is 20 minutes, so says the American Medical Association Journal. The longest

wait is to see the general practitioners, which averages 27 minutes; internists 22 minutes; and surgeons 23 minutes. It takes an average of 7.3 days to see a doctor by appointment for non-emergency health problems.

PINE BLUFF'S ARMY PHYSICIAN RETIRES WITH HONORS

Colonel Edward E. Mays, United States Army Medical Corps, Medical Consultant for Health Services Command, the Army's nationwide medical command, headquartered at Ft. Sam Houston, was doubly honored during his recent retirement ceremony. He was presented with the Legion of Merit, citing him for outstanding service in positions of great responsibility during the last 10 years. Dr. Mays was also elected to the Infantry Hall of Fame.

Dr. Mays is a native of Pine Bluff and a graduate of the University of Arkansas School of Medicine. His specialty is pulmonary diseases and he was Chief of the Pulmonary and Infectious Disease Services at Health Services Command headquarters last year. He has accepted the position of Professor of Internal Medicine and is the chairman of the Department of Medicine at Meharry Medical College in Nashville, Tennessee.

GOVERNOR PRYOR NAMES THREE TO INHALATION THERAPY EXAMINING COMMITTEE

Governor Pryor named Dr. James R. Rasch of Little Rock, Charles Miller of North Little Rock, and Dr. Wayne B. Glenn of Little Rock to three year terms on the State Inhalation Therapy Examining Committee. Dr. Rasch and Dr. Glenn were reappointed and Charles Miller will replace Dr. Bill Rowland of Little Rock.

MEDICAL PLEDGES TOTAL \$100,000

Three year pledges of more than \$100,000 were announced by the Southeast Arkansas Medical Center Campaign Committee. A drive to raise \$500,000 to build a 12,000-square-foot center in Dumas for eight doctors and their staffs, will end in mid-October. There are three doctors presently practicing in the area, and four University of Arkansas Medical School students have announced that they will practice at the center when they finish their internships.



PERSONAL AND NEWS ITEMS

DR. Citty JOINS HARDING COLLEGE STAFF

Dr. Jim C. Citty has joined the Harding College staff this year as adjunct Professor of Nursing. Dr. Citty addressed the annual pre-session conference of Harding personnel at Camp Tahkodah.

DR. DAVIDSON RECEIVED RECOGNITION

Dr. Dennis Davidson of Conway (Faulkner County) has received the Physician's Recognition Award for Continuing Medical Education from the American Medical Association.

ARKANSAS ACADEMY OF FAMILY PHYSICIANS ANNUAL MEETING

The Arkansas Academy of Family Physicians held its annual meeting in August in Fort Smith. Guest lecturers were Dr. Denton Cooley and Dr. Robert Leachman of the Texas Heart Institute at Houston, Texas. The new officers who were installed: Dr. Ken Lilly, Fort Smith, President; Dr. George Warren, Smackover, President-Elect; Dr. James Weber, Jacksonville, Vice President; Dr. James Patrick, Fayetteville, Secretary-Treasurer. Dr. Kemal Kutait, Fort Smith, was named delegate, and Dr. James Lytle of Batesville, alternate delegate. Dr. Jerry Mann of Arkadelphia, Dr. Jack Patterson of Clarksville, Dr. Merle Osborne, Blytheville, Dr. R. E. Nordling, Little Rock, and Dr. Robert E. Holder of Little Rock were elected to the Board of Directors. Dr. Paul Wallick is immediate past president.

DOCTORS DISCUSS PROS AND CONS OF RIGHT TO DIE

Dr. Kent C. Westbrook, Associate Professor of Surgery, and Dr. Billy Lynn Trantum, Assistant Professor of Medicine, both members of the faculty at the University of Arkansas College of Medicine, discussed the pros and cons of the "right to die" at a Little Rock Rotary Club luncheon in July.

HUSBAND AND WIFE DOCTOR TEAM FOR DES ARC

Drs. Zia and Bobbie Shefa have accepted the responsibilities of being the family physicians for the North Prairie County Medical Center in Des Arc. Dr. Zia Shefa is a native of Afghanistan

and his wife, Bobbie, is a native of Carlisle, where they were residing.

DR. CARL L. NELSON SPEAKS AT HARVARD MEDICAL SCHOOL

Dr. Carl L. Nelson, Chairman, Department of Orthopaedics, University of Arkansas Medical School, spoke at the Harvard Medical School Department of Continuing Education course, "Frontiers in Total Hip Surgery," on October 8-9. The course is designed to focus on the current developments in total hip replacement surgery with emphasis on surgical management of complex problems.

DR. MASHBURN APPOINTED TO STATE POLICE COMMISSION

Dr. James Mashburn, Fayetteville Obstetrician and Gynecologist, will finish the term of the late Joe Steele of Springdale on the State Police Commission. The term expires on January 14, 1980.

PEDIATRICIAN JOINS STAFF AT CONWAY MEDICAL GROUP

Dr. Paul Meredith, Pediatrician, has joined the Conway Medical Group at Denison Street and College Avenue. He is affiliated in the clinic with Dr. William C. Furlow, Dr. Robert L. Clark, and Dr. W. C. Roberts.



THINGS TO COME



POST GRADUATE COURSE IN CYTOPATHOLOGY

The Eighteenth Postgraduate Institute for Pathologists in Clinical Cytopathology is to be given at the Johns Hopkins University School of Medicine and the Johns Hopkins Hospital, Baltimore, Maryland, on April 11-22, 1977. The full two-week program is designed for the Pathologists who are Certified (or qualified) by the American

Board of Pathology, or their international equivalents.

The course will provide an intensive refresher in all aspects of the field of Clinical Cytopathology, with time devoted to newer techniques, special problems, and recent applications. Topics will be covered in lectures, explored in small informal conferences, and discussed over the microscope with the faculty. Self-instructional material will be available to augment at individual pace. A loan set of slides with text will be sent to each participant for home study during March and April, before the Institute. Credit hours: 120 in AMA category 1.

Application is to be made before February 28, 1977. For details, write: John K. Frost, M.D., 610 Pathology Building, The Johns Hopkins Hospital, Baltimore, Maryland 21205. The entire course is given in English.

NEW HORIZONS IN THE TREATMENT OF SOLID TUMORS CONFERENCES

SPONSORS: The Oklahoma Medical Research Foundation and The Oklahoma Hospitals Breast Cancer Control Network.

LOCATION: Lincoln Plaza, Oklahoma City, Oklahoma.

DATES: Wednesday, November 10, 1976, 12:00 to 5:00 p.m. — "New Horizons in the Treatment of Solid Tumors." Thursday, November 11, 1976, 8:00 to 5:00 p.m. — "Controversies in Breast Cancer."

REGISTRATION INFORMATION: Contact A. F. Hoge, M.D., Oklahoma Hospitals Breast Cancer Control Network, Oklahoma Medical Research Foundation, 825 Northeast 13th Street, Oklahoma City, Oklahoma 73104; or call: 405 234-8331, Ext. 460.

SEMINAR ON EMERGENCY MEDICAL SERVICES

On November 3, 1976, at the Fairmont Hotel in New Orleans, Louisiana, the Health Services Advisory Committee in cooperation with the United States Civil Defense Council, Tulane University School of Medicine, Louisiana State University School of Medicine, New Orleans City Health Department, Orleans Parish Medical Society, and the Louisiana Medical Association, will sponsor a continuing Medical Education offering of the American Medical Association. This meets the criteria for four hours of credit

in Category 1 for AMA Physicians Recognition Award.

Registration fee is \$15.00 and includes the Pfizer Award Luncheon. The sessions begin at 8:00 a.m. and last until 5.30 p.m. Reservations can be made at the Fairmont Hotel, University Place, New Orleans, Louisiana 70140; or call 504 529-7111.



DR. FRANK DeSANDRE has been accepted for membership in the Washington County Medical Society. Dr. DeSandre is a native of Illinois. He attended the University of Illinois in Champaign and received his M.D. degree from the University of Illinois in Chicago. He completed his training at St. Luke's Presbyterian Hospital in 1969. Dr. DeSandre served in the Air Force from 1967 to 1971. He practiced medicine in Des Moines, Iowa, from 1971 to 1973, and was in practice in Madison, Wisconsin, from 1973 to 1974. Dr. DeSandre's specialty is obstetrics and gynecology and he is Board Certified by the American College of Obstetrics and Gynecology. His office is located at 606 South Young, Springdale, Arkansas.

Pulaski County Medical Society has reported the following physicians who are accepted to its membership roll:

DR. BRIAN E. BARLOW, a Cardiologist whose office is located in the Doctors Building, Suite 608, Little Rock, Arkansas. Dr. Barlow, a native of Arkansas, attended the University of Arkansas in Fayetteville, receiving his B.S. degree in 1964. He received his M.D. degree in 1968 from the University of Arkansas School of Medicine in Little Rock, and interned in King

County Hospital in Seattle, Washington. He completed his residency at the University Medical Center in Little Rock and he is Board Certified by the American Board of Internal Medicine.

DR. ERNEST C. "CLIFF" CLIFTON is a new member of the Society. Dr. Clifton attended Southwestern at Memphis, Tennessee, where he received his B.A. in chemistry. He was graduated from the University of Arkansas Medical School in Little Rock. He completed his training in Ophthalmology from the University of Arkansas Medical Center in Little Rock. Dr. Clifton's office address is 516 Scott, Little Rock, Arkansas.

DR. ALBERT ELI KALDERON is a new member of the Society. Dr. Kalderon is a Pathologist associated with the University of Arkansas Medical School in Little Rock. He is a native of Istanbul, Turkey, and attended school there. Dr. Kalderon received his medical training in Istanbul University School of Medicine and was an intern at the Mercy Hospital in Des Moines, Iowa. He completed his training at the Albert Einstein College of Medicine, Bronx, New York. He is Board Certified by the Anatomic and Clinical Pathology Board, and has professional society memberships in the American College of Pathologists; the American Society of Clinical Pathologists; International Academy of Pathology; and the New York Academy of Sciences.

DR. HERMAN A. TALLEY is a native of this State. He attended the University of Arkansas Medical School at Little Rock and received his M.D. degree in 1971. He received both intern and residency training at the University of Arkansas in Little Rock, finishing there in 1974. He is Board Certified by the American Board of Obstetrics - Gynecology and is in private practice in the Doctors Building, Suite 702, 500 South University in Little Rock.

DR. THOMAS R. WALLACE has been accepted for membership and his specialty is Oph-

thalmology. Dr. Wallace is a native of Arkansas and attended the University of Arkansas where he received his M.D. degree. He is currently completing his specialty training at the Medical Center.

DR. CHARLES D. WILLIAMS has established his office at 500 South University Avenue, Little Rock. Dr. Williams was born and raised in Arkansas and attended the University of Arkansas Medical College where he received his B.S. and M.D. degrees. He interned in the Parkland Memorial Hospital from 1965 to 1966 in Dallas, Texas, and completed his residency in the University of Arkansas Medical School in Little Rock and Parkland Memorial Hospital, Dallas, Texas. Dr. Williams served a fellowship at the New York University Medical Center in New York City, New York. He is board certified by the American Board of General Surgery and the American Board of Thoracic Surgery.

The Craighead-Poinsett County Medical Society has accepted into membership DR. ROBERT M. STANTON, JR., of Jonesboro. Dr. Stanton is a pathologist and is presently associated with the Doctors Pathology Services, P.A., of Jonesboro. Dr. Stanton received his B.S. degree from the University of Arkansas in 1968. He graduated with his M.D. degree in 1972 from the University of Arkansas and interned and completed his residencies at the University of Arkansas in Little Rock.

DR. ROBERT VAN WALLING has been accepted into membership by the Sebastian County Medical Society. He is a native of Texas and is associated with Drs. Post, Floyd, and Parker of Fort Smith, Arkansas, as a pediatrician. Dr. Walling attended Baylor University and received his B.A. in 1964 and his M.A. in 1967. He was graduated in 1970 from the University of Tennessee with his M.D. degree. His internship and residencies were completed with the City of Memphis Hospital from 1970 through 1973. He was in the Army Reserve from 1970 to 1974.





PROCEEDINGS OF SOCIETIES

MINUTES

COUNCIL OF THE ARKANSAS MEDICAL SOCIETY

August 22nd, 1976

The Council of the Arkansas Medical Society met at 12:00 noon on Sunday, August 22, 1976, in the Camelot Inn, Little Rock. Present were Burge, Koenig, Kolb, Shuffield, Duzan, Maris, J. Bell, P. Bell, Irwin, Jameson, Moore, Harris, Andrews, Clark, Jouett, Henry, Williams, Kutait, Wilkins, Chudy, Crow, Watson, Townsend, Verser, Wood, Rex Ramsay, Edgar Easley, Purcell Smith, Robert Benafield, Ken Lilly, W. P. Phillips, Raymond Biondo, G. Thomas Jansen, George Warren, Mark White of the Health Department, Malcolm Todd of California, Mr. Jim House of Blue Cross-Blue Shield, Dr. Long, Mr. Warren, Miss Richmond, Mr. Schaefer, and Mr. McIntosh.

The Council transacted business as follows:

1. Upon motion of Henry, the Council approved actions of the Executive Committee in meetings of May 10, June 7, July 28, August 3, and August 5, as follows:
 - A. On May 10th, voted to employ Gene Newsom Associates to do public opinion polling for the malpractice amendment;
 - B. On June 7th, selected individuals to supplement the present Medical Services Review Committee in assisting with procedural coding for Medicaid, and
 - C. Authorized the headquarters office to make selections of trips for the travel program with International Travel Advisors as long as the company's program for the membership is satisfactorily handled;
 - D. At a meeting on July 28th, voted to call a meeting of the House of Delegates for August 22nd and a special membership meeting on September 19th;
 - E. Voted to continue the Amendment 58

campaign without recommendations for remedial legislation;

- F. Voted to decline an invitation to participate in a panel program on Amendment 58 sponsored by the Pulaski County Bar Association;
 - G. Approved fringe benefits for the new executive vice president in accordance with previously-established policies;
 - H. Approved the production and showing of a series of television spots for airing in September and October to promote passage of Amendment 58.
 - I. On August 3rd, the Executive Committee heard a report on the public opinion poll for Amendment 58 and approved expenditures for television spots.
 - J. On August 5th, the Committee agreed to appeal to the Arkansas Supreme Court the ruling by Judge Hickman that Amendment 58 could not appear on the ballot because of clerical errors made in the Journal of the Legislature. It was agreed that the educational campaign should be continued without interruption and Secretary Shuffield was authorized to commit the Society to pay for required publication of the proposed amendment if State funds cannot be used to cover publication expenses.
2. Paul Schaefer discussed proposed television spots for the Amendment 58 campaign. Upon motion of Henry, the Council approved the proposed scheduling of television spots in early September. There was one vote in opposition.
 3. President Koenig read a letter from the president of the Arkansas Trial Lawyers Association asking for a joint meeting. Upon the motion of Wilkins, the Council voted to authorize legal counsel Eugene Warren to meet with representatives of the Trial Lawyers Association.
 4. Upon the motion of Wilkins, Kenneth R. Duzan was elected to fill the vacancy on the board of trustees of the Arkansas Medical Society Employees Pension Plan.
 5. Asa Crow discussed the request of the Greene-Clay County Medical Society that a special committee be appointed to review the services of the county health departments over the State and the projected goals of the State Health Department. Upon the motion

of Andrews, the Council voted to authorize the chairman to appoint a special committee as recommended. It was agreed that the committee should hold a meeting which would be publicized so that all interested parties could attend.

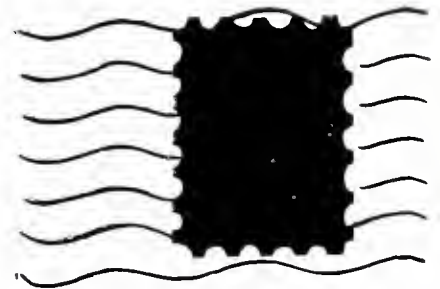
6. Dr. Mark White of the Communicable Disease Division of the State Health Department discussed the proposed program for the Swine Flu vaccine. He advised the Council that it is anticipated the vaccine will be available about mid-September; that it will be made available to physicians at no charge for use in their offices with high-risk individuals; after distribution to physicians, public clinics will follow to cover others. Clinics would be arranged county-by-county and could not be simultaneous because of the limited number of "guns" for administering vaccine. Upon motion of Kutait, the Council endorsed the program proposed by Dr. White.
7. Upon motion of Wilkins, the Council voted to approve the rate adjustment for the Society's group plan with Blue Cross-Blue Shield and to approve an improved benefit package recommended by Blue Cross-Blue Shield. The benefit changes increased the room allowance to \$60, increased major medical to one million with 100% coverage above \$500 and increased eligibility for dependents to age twenty-three.
8. Dr. Long presented an inquiry from the John Hancock Life Insurance Company about the availability of a surgical consultation program for elective surgery. Upon the motion of Wilkins, the Council directed that the insurance company be advised the Society considers such programs to be ineffective.
9. The Council received for information a report from the Secretary of the State Medical Board concerning the Board's action regarding temporary permits.
10. Upon the motion of Henry, the Council voted to pay fifteen cents (15¢) per mile automobile mileage for authorized travel on Society business, or the lesser of coach air fare or mileage at 15¢ where applicable.
11. Leah Richmond reported to the Council on problems encountered in the hotel reserva-

tion for the 1978 spring meeting. The Council reaffirmed the date of April 16-19 for the 1978 meeting in Hot Springs and voted to authorize the Executive Committee to explore dates other than the usual third week in April for future years.

12. The Council voted, upon motion of Andrews, to hold the winter meeting on November 14.
13. Purcell Smith reported to the Council on the Ranch Party which the Society co-hosted at the Dallas meeting of the AMA in June 1976.

APPROVED: John P. Burge, M.D.

Chairman of the Council



LETTERS TO THE EDITOR

Arkansas Medical Society
Fort Smith, Arkansas

Dear Sir:

Could you please tell me if there is recorded in your medical records a burn case attended by Dr. W. W. Morris of Denton (Lawrence County) Arkansas?

Sometime during the year of 1909, Dr. Morris attempted to graft the skin of a bullfrog on the patient. I am that patient. I was born July 15, 1906, son of Robert A. East and Soula Q. East, Denton, Arkansas. I have recently learned about this as explained in the following.

Soon after I was burned, my parents separated. We children were put with different families and became separated. Through search, I have located my oldest sister (76 years old) in California. She has told me the following.

On March 17, 1909, we four children (I being

the youngest, two years, eight months) were put to work out in the fields burning piles of corn stalks. Our Mother had gone to the country store to buy beans to plant in the garden. Our father was some distance away in another field sowing oats. In some manner, my clothes were ignited. My sisters and brother, being children, began screaming to attract our father's attention. He had to run some distance to get to us. By this time, I was burned over much of my body. Father put out the fire and my brother and sisters went to get Dr. Morris, who lived about one mile away. When he arrived, he immediately began treating me, but explained there was no hope. But, because of his good and constant care, I began to improve.

Sometime later — my sister was not sure when, but suggested it was several months — the burn would or could not heal itself because of the massive area. Dr. Morris began talking of skin grafts. He first took small sections from my sister's shoulder. Before that had time to heal, Dr. Morris decided he must have larger sections to graft, and decided that the great springs at Mammoth Spring, Arkansas, could supply a bullfrog — thinking the fresh clean water would produce a healthy specimen. He rode his horse all night and part of the next day, and came back with the frog. In our farmhouse kitchen, he prepared the white belly skin and grafted it on me in two places on my stomach and right leg. The scar tissue in these areas are to this day different colors than other scar tissue. I'm sure the graft itself was not a success, but the constant attendance of Dr. Morris (he lived at our house for several months) helped my body to repair itself. I am scarred on my right hand and right arm, right side of my face, right chest, completely across my stomach, right side, and right leg almost to my knee.

As I grew, this mass of scar tissue pulled me to a stooped position and I was unable to walk. My sister says I moved about in almost a spider fashion. Thanks to some of the people with whom I stayed, they helped in teaching me to walk. I wasn't much help to a farmer so I was shifted around quite a bit. As I grew up, I realized I had to make my own living. With determination and the help of some good people, I was able to overcome most of my deformities,

but could never pass a physical for a good job, but have been able to make a living.

Dr. Morris became a local celebrity and traveled about on lecture tours, that is why I feel there might be some record of this case.

I will be 70 years old on July 15, and I would be most happy to be able to present my family with this proof if it exists. If not in your records, maybe in the records of the Lawrence County Medical Society. If you would be so kind as to forward this information to them.

Thank you for your patience in reading through this.

With great hopes, I remain,

Respectfully yours,
Carrington R. East

EDITORIAL NOTE: The Medical Society has been unable to find any mention of this case in the Society records. We would appreciate hearing from anyone who has information on the case.



ANSWER — Electrocardiogram of the Month

ECG #1

7:55 A.M.

Sinus rhythm 75/minute with frequent ventricular (V_4) and rare supraventricular (V_2) extrasystole.

PR interval = 0.14

QRS " = 0.10

QT " = 0.52

The QT interval is prolonged and the ST-T waves show abnormal inversion. The combination of slightly prolonged QRS intervals, QT intervals and Quinidine therapy suggest quinidine toxicity.

ECG #2

5:45 P.M.

Sinus rhythm 90/minute with single supraventricular beat (V_1).

PR interval = 0.14

QRS " = 0.08 — 0.09

QT " = 0.38

Abnormal ST-T wave inversion persists suggesting L.V. ischemia and "strain". However the QT interval is normal, the patient having been off Quinidine for 10 hours.

QT prolongation with Quinidine toxicity may promote ventricular arrhythmias. If not recognized as such, the physician may elect to give increasing doses of the drug, aggravating the arrhythmia and risking more catastrophic ventricular tachycardia.

November, 1976

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 73 No. 6

FORT SMITH, ARKANSAS

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● Predominant
psychoneurotic
anxiety

● Associated
depressive
symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor

neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive dis-

orders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anti-convulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful

respond to one

According to her major symptoms, she is a psychoneurotic patient with severe anxiety. But according to the description she gives of her feelings, part of the problem may sound like depression. This is because her problem, although primarily one of excessive anxiety, is often accompanied by depressive symptomatology. Valium (diazepam) can provide relief for both—as the excessive anxiety is relieved, the depressive symptoms associated with it are also often relieved.

There are other advantages in using Valium for the management of psychoneurotic anxiety with secondary depressive symptoms: the psychotherapeutic effect of Valium is pronounced and rapid. This means that improvement is usually apparent

in the patient within a few days rather than in a week or two, although it may take longer in some patients. In addition, Valium (diazepam) is generally well tolerated; as with most CNS-acting agents, caution patients against hazardous occupations requiring complete mental alertness.

Also, because the psychoneurotic patient's symptoms are often intensified at bedtime, Valium can offer an additional benefit. An *h.s.* dose added to the *b.i.d.* or *t.i.d.* treatment regimen can relieve the excessive anxiety and associated depressive symptoms and thus encourage a more restful night's sleep.



Valium[®] (diazepam) [Ⓢ]

2-mg, 5-mg, 10-mg scored tablets

in psychoneurotic
anxiety states
with associated
depressive symptoms

surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of child-bearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies.

Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle

spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



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A KAP (Knowledge-Attitude-Practice) Approach to The Regionalization of Perinatal Health

Henry C. Heins, Jr., M.D., M.P.H.*

Many KAP studies of public health problems have been done. This is an accepted approach by public health investigators.¹ A similar approach to regionalization of perinatal health care in South Carolina is proposed. Theoretically, as knowledge increases, attitudes and practices will change. (Figure 1)

South Carolina, 55% rural and 45% urban, is divided into 46 counties. In 1970, it ranked 40th in land area and 26th in population (2,590,516) of the 50 states.

South Carolina is, and has been, third from the bottom in United States perinatal mortality. Only a few percentage points separate the lower most ten states in this country in perinatal mortality. Most of these states are in the south-eastern section of our country and share similar problems of large numbers of low socio-economic groups.²

Fetal, neonatal, and perinatal rates are indicators of community health. Although perinatal mortality is associated more closely with the events immediately surrounding births, numerous other factors such as poor home development, lack of education, and low socio-economic status must be considered. No report derived solely from birth and death certificates can bring to light all factors affecting mortality. In evaluating services, the social, cultural, and economic characteristics of the population served carry considerable weight. However, these factors are disregarded when politicians lay the blame at the door of physicians.

*Associate Professor, Obstetrics & Gynecology, Medical University of South Carolina, Charleston; Consultant, Maternal & Child Care Division, South Carolina Department of Health & Environmental Control.

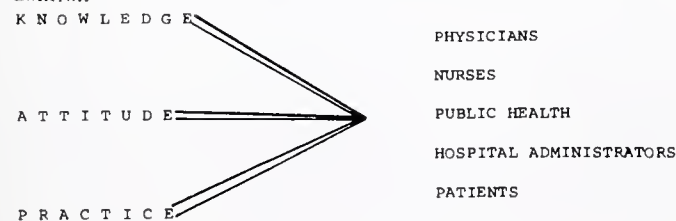


Figure 1.

Perinatal deaths, both fetal and neonatal, are usually reported by county of occurrence or county of residence. Now, for the first time in South Carolina, these statistics have been reported by hospital. Since perinatal programs can be programed for computers, it is possible to annually do a ranking of maternity services by perinatal mortality.³

In South Carolina 66 of the 68 hospitals (97%) with active maternity services in 1972 responded to a perinatal services questionnaire. The 25 item questionnaire response revealed some interesting data about the delivery of perinatal health care in our state. This study was cross-validated by an analysis of the fetal and neonatal deaths from a review of fetal death certificates and matched birth and death certificates for the year 1972.⁴

Hospitals were classified in six groups according to the size of maternity service. More than one-half of the maternity services in South Carolina have less than 500 deliveries per year. Only 20% of South Carolina's 50,000 births occurred on these small services, but, significantly, it is here that more than 30% of the fetal deaths and 50% of the maternal deaths occurred. (Figures 2, 3, 4)

A similar picture of a multitude of smaller maternity services is seen also in Arkansas.^{5,6} (Figures 5, 6)

Utilization of delivery rooms and maternity beds does not reach the South Carolina mean until more than 500 births occur on a service.

SOUTH CAROLINA 1972

51 % OF OB SERVICES DELIVER LESS THAN 500/YEAR
THIS REPRESENTS ONLY 20 % OF S.C. 50,000 BIRTHS ANNUALLY
BUT
30 % OF FETAL DEATHS AND 50 % OF MATERNAL DEATHS OCCUR
ON THESE SMALL SERVICES

Figure 2.

The mean of less than 1 delivery (0.9) per day per delivery room shows very poor utilization of facilities. (Figures 7, 8)

The proposal to regionalize, not centralize, perinatal care is intended to provide resources for the practicing physicians and to make available consultation services and medical facilities for any complexity in maternity and infant care. The proposal is not intended to restrain or

dictate medical practice. The private practitioners must be assured that the plan does not pose a threat to their practice, but will upgrade their hospital facility. The responsibility of whom to hospitalize and where to hospitalize must remain within the province of the individual physicians. Any such plan can not succeed without the complete cooperation of the physicians involved.⁷

Under such a plan, three hospital levels of

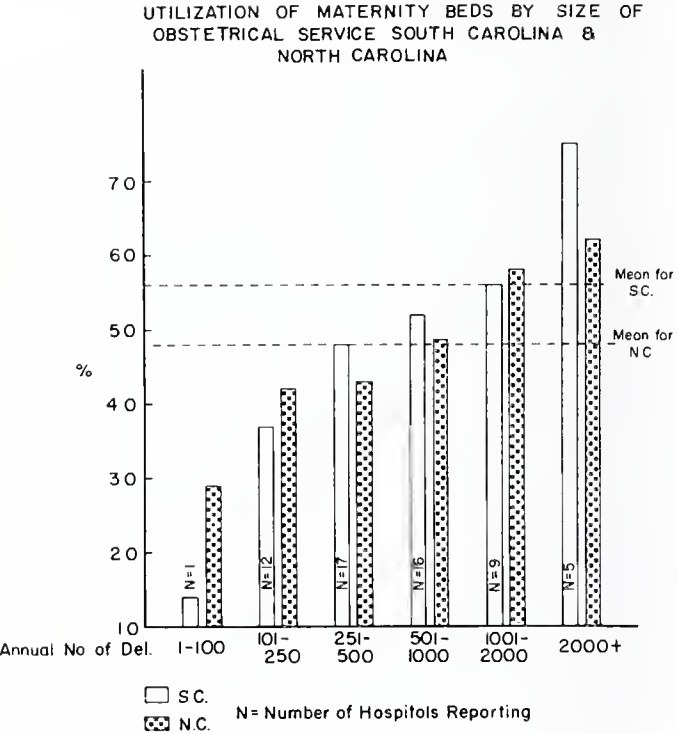


Figure 3.

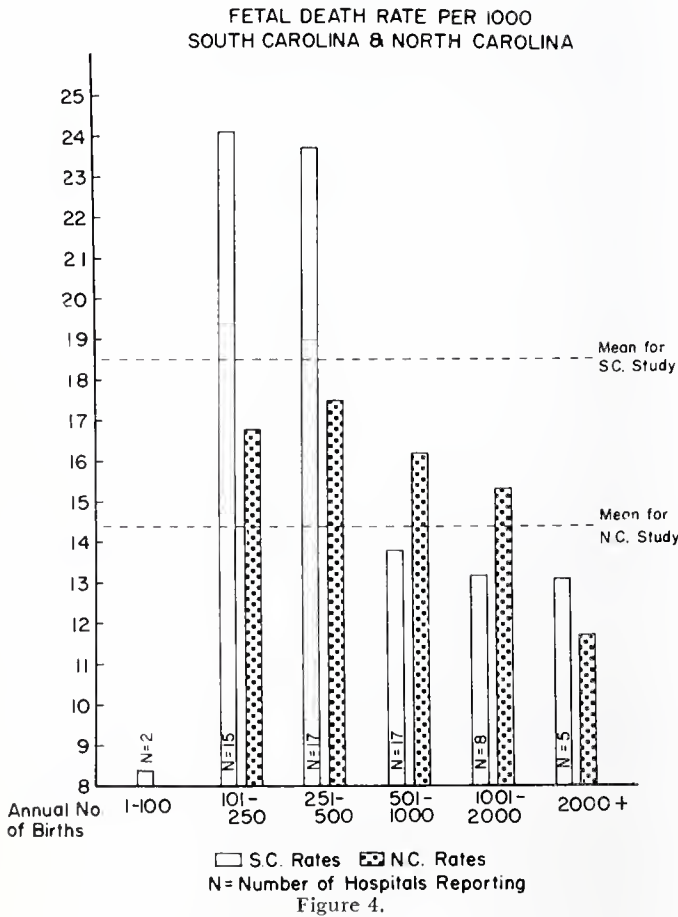


Figure 4.

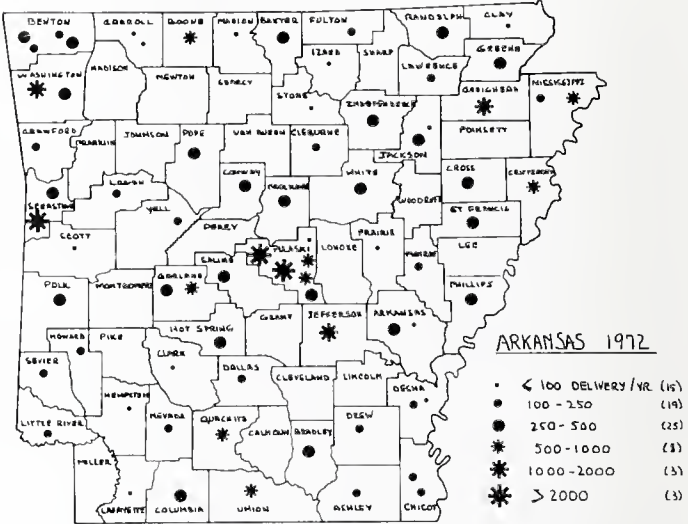


Figure 5.
ARKANSAS 1972

95 HOSPITALS
73 MATERNITY SERVICES
59 OB SERVICES LESS THAN 500/YEAR
34 OF THESE DELIVER LESS THAN 250/YEAR,
THIS 46 % OF OB SERVICES DELIVER 14 % ARKANSAS BIRTHS
MEAN DEL/YEAR = 119 (LESS THAN 10/MONTH)

Figure 6.
ARKANSAS 1972

8 HOSPITALS (500 - 1000 BIRTHS) - 5,474
3 HOSPITALS (1000 - 2000 BIRTHS) - 3,612
3 HOSPITALS (> 2000 BIRTHS) - 7,724
14 HOSPITALS (19%) DELIVERED 16,810 PATIENTS (57%)

Figure 7.

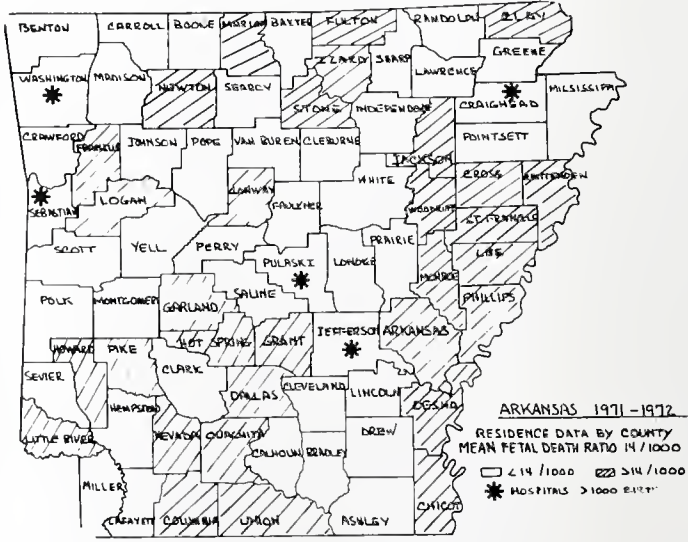


Figure 8.

care would be identified, each with certain characteristics of facility, equipment, and personnel. The three levels of hospital recommended are:

LEVEL 1 –Community hospitals (20-25)
would deliver normal obstetrical
and neonatal care.

LEVEL II—District hospitals (10) would deal with most of the obstetrical and pediatric problems.

LEVEL III—Regional hospitals (3) would serve as centers for the care of the most complicated cases. These centers (Greenville, Columbia, Charleston) would have a total commitment to continuing perinatal education in their regions.

After some three years of study, a national task force made up of the American College of Obstetrics and Gynecology, the American Academy of Family Practice and the A.M.A. with the National Foundation-March of Dimes, acting as secretariat, has evolved specific criteria which establish a certification mechanism whereby a hospital is designated as Level I, II, or III.⁷

The long range plan in South Carolina is to have all hospitals in South Carolina eventually attain Level II capability, since it is clear that a significant percentage (estimated 40-50%) of high risk patients can not be identified prior to the onset of labor. Nevertheless, an important facet of the plan is the development and implementation of a data collection system which can detect high risk patients while they are still at risk. (Figure 9) Computerized perinatal records are being developed which will require less record keeping time for the physician, thereby allowing more time to be spent with patients.⁸

Hospital administrators will take a dim view of the expensive equipment needed in a perinatal center since the obstetrical service is usually a “loss leader” in most hospitals. This should be a factor in the consolidation of the multiple small obstetrical services and in the pooling of resources to acquire monitoring equipment. (Figure 10)

Perinatal mortality is just the tip of the "iceberg". Similar numbers of infants with neurologic deficits are important aspects of the problem. It is very difficult to estimate the cost of reproductive casualties such as patients with cerebral palsy, and mental retardation.

It should be emphasized that the perinatal center represents a great educational resource. The regionalized perinatal concept is not a threat to the private practitioner, who is invited and encouraged to use the premises for his high risk patient. Both Level II and Level III hospitals will have to have "open staff" privileges for physicians doing obstetrics. (Figure 11)

KNOWLEDGE

A concentrated attempt to involve physicians

[illegible]

Figure 9.

FLOW OF HIGH RISK PATIENTS

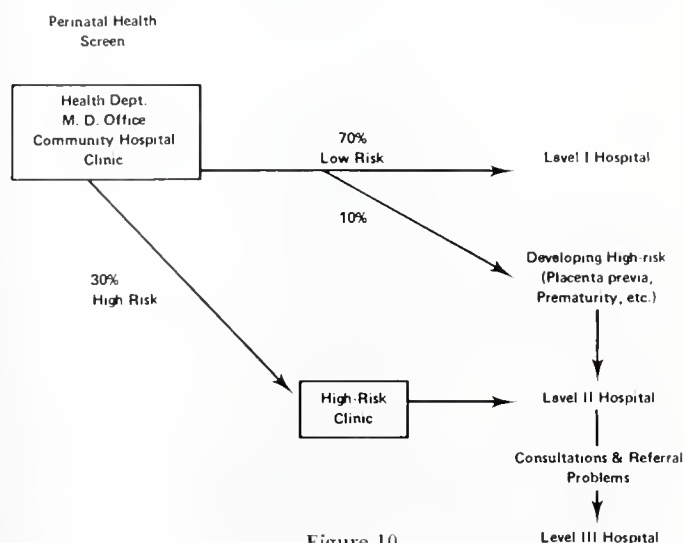


Figure 10.

at locations of the ten Level II (District hospitals) high risk centers has been made. It is estimated that these hospitals will be the location of the "action" where over 90% of the monitoring of the high risk patient will take place in South Carolina.

Each month, during the past year, a pediatrician and an obstetrician from the same Level II hospital staff were brought to the Perinatal Center at the Medical University of South Carolina. Thus far, seventeen such teams of physicians have been exposed to the perinatal concept. They spent one week attending symposia and gaining clinical experience in both the fetal intensive care unit and the neonatal intensive care unit. It is estimated that the present half life of perinatal knowledge is 18 months. Therefore, an intensive education program must be continually operating at all levels of care. Current perinatal concepts are emphasized along with the capability of applying these concepts in the Level II hospital.

Nurses from the Level II hospitals were also brought down in groups of 10 to spend two weeks at our Perinatal Center. These nurses then returned to their Level II hospitals and had a re-enforcing visit from the Level III nursing staff.

A film outlining the advantages of a high risk center was produced under a Regional Medical

Program (RMP) grant. This film is used on a closed, state wide hospital television network with a talk-back period following the program.

Combined obstetrical/pediatric conferences take place twice monthly at the three Level III hospitals and are being encouraged at the Level II institutions. The private practitioners are especially invited to these conferences.

Attempts are made to improve communications between the private physicians and the state health department personnel to overcome the natural suspicion between these two professional groups.⁹

Attempts to improve communication are also made by the use of a "hot line" type of WATS telephone to the three Level III Centers. It is emphasized that the referring "LMD" be given recognition for having some intelligence and be allowed to consult with the Chief of the unit and not with just the intern or resident on call.

Ambulatory consultations for evaluation of private high risk patients have been of benefit to both the perinatal center and the private physicians.

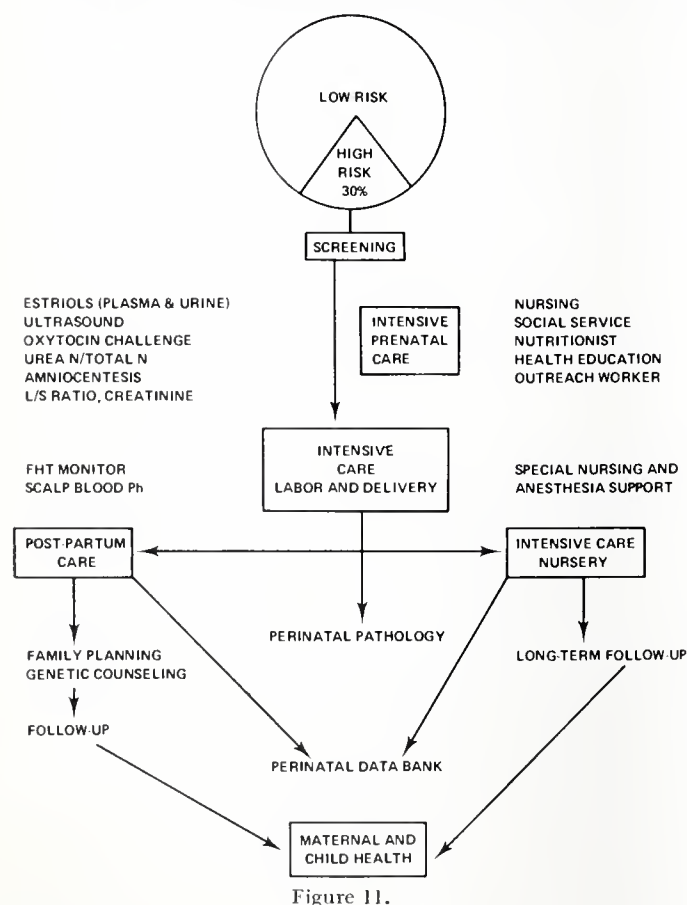
A cooperative effort with the emergency medical service (E.M.S.) and the military air safety traffic (MAST) in training of paramedical attendants is beginning to help alleviate a complex problem of transportation of the high risk mother and neonate to the desired Level Hospital.

Improved pregnancy outcome can be demonstrated by study of the Medical University of South Carolina's Perinatal Center's experience since 1969. (Figures 12, 13, 14)

ATTITUDES

Perhaps the most potent barrier is the resistance of the physicians themselves. They fear an attempt to develop an elitist group from which they are excluded. They fear loss of status, loss of medical challenge, and of being limited to treating "normal" cases.

Unless patients, physicians, and hospital administrators change their attitudes, regionalization will not be accomplished to any significant degree on a voluntary basis. Many obstetricians and gynecologists approve this concept, in principle, as long as it does not involve the community where they practice.¹⁰ These obstetricians have enjoyed a successful practice in one or two hospitals where their patients have received excellent care. The physicians have been active in sectional and hospital activities and have developed a successful referral pattern with other



specialists. They do not want to give up this ideal arrangement, yet they realize changes are needed since three or four obstetric units in the community have many unoccupied obstetric beds. Many conferences and detailed plans have been proposed regarding the feasibility of a consolidated perinatal unit, yet the physicians are reluctant to consider a move to a strange hospital with different nurses and unfamiliar specialists and hospital administrators. In addition, the physicians are concerned that they may lose control of their complicated obstetrical problems.¹¹

While hospital administrators worry about the loss of revenue because of the number of unoccupied beds, they are more concerned about the loss of surgical/gynecology in the family unit. Thus, they will expect a lucrative trade off in lieu of obstetrics.

It is surprising, considering the decreased

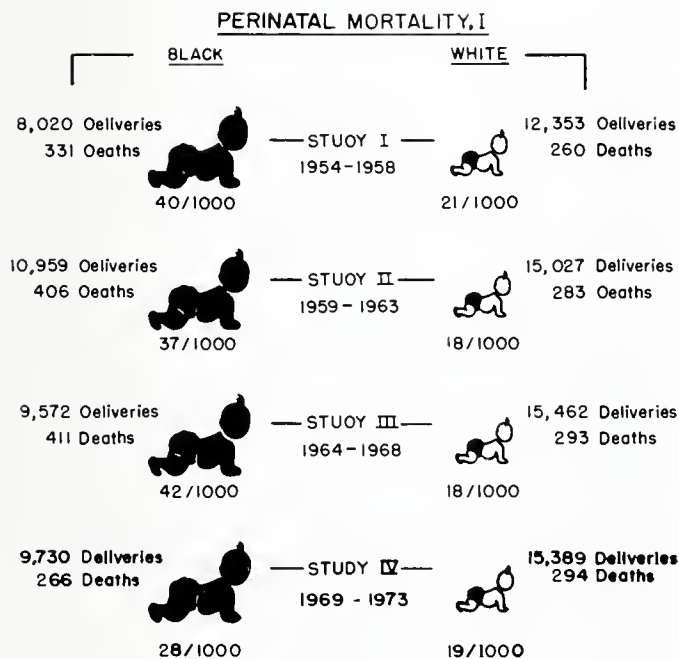


Figure 12.

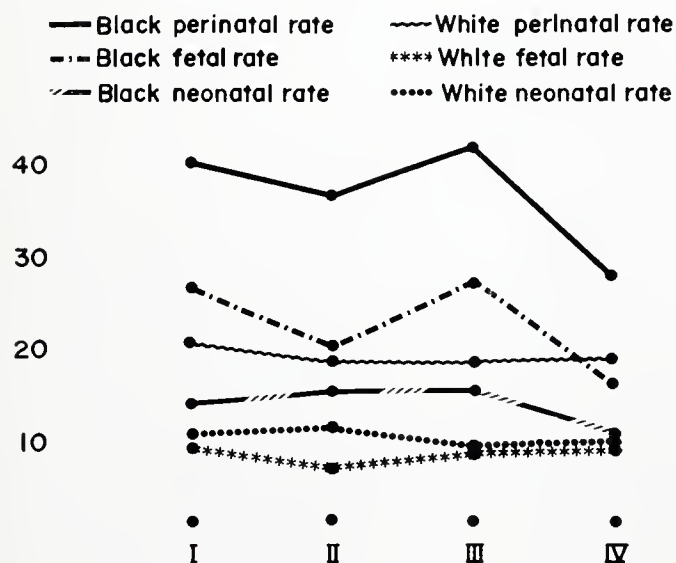


Figure 13.

volume of deliveries and general unprofitable nature of obstetrics, to notice that few hospitals plan to eliminate this service. The continued maintenance of obstetrics, despite a constant effort to break even financially, is justified in terms of four basic considerations:

- 1) *True Community hospitals* must provide a full complement of services in order to justify their existence.
- 2) *Pressure* from the affiliated physicians who require obstetric facilities near their respective offices as a matter of personal convenience.
- 3) *Fear* that closure of obstetrics would adversely affect the total volume of hospital business. Private practitioners may move their entire practice to another facility which also provides obstetric services.
- 4) *Underestimation* of the number of high risk private patients by hospital administrators. They estimate the total high risk group at approximately 1-2% of the total births. The actual figure is nearer 10-15%.

On occasion when the public is informed of such plans, the communication media may take sides by providing elaborate testimonials con-

MATERNAL MORTALITY

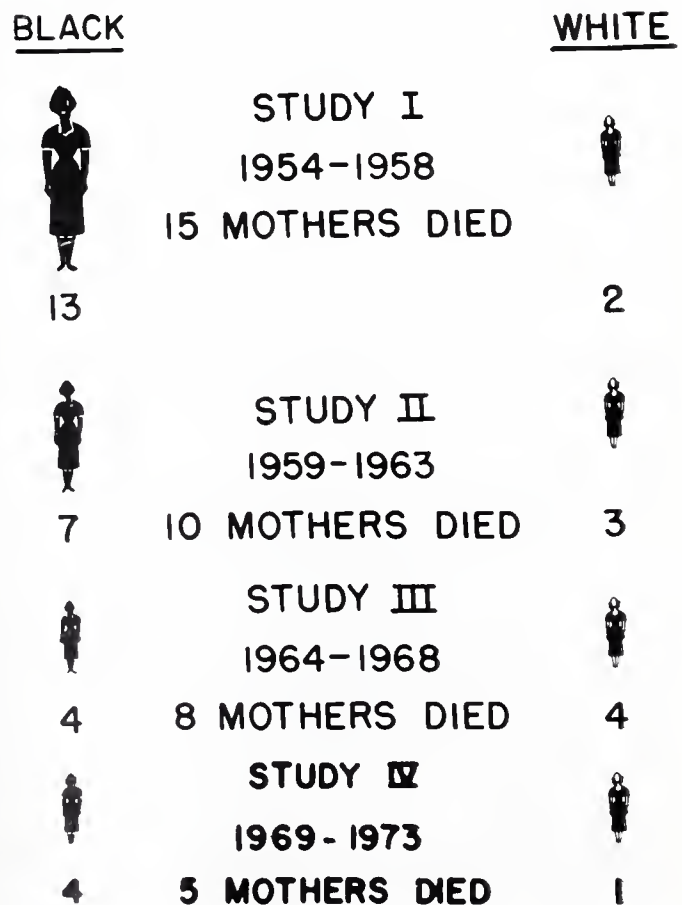


Figure 14.

cerning the excellent care received in the past, and how, in the future, the patient will be denied the choice of hospitals. The physicians who have been leaders in such reorganization attempts may receive anonymous threats and hate mail. When the various groups realize the extent of the opposition, progress stops or, at best, proceeds very slowly. With so many cross currents and opposing points of view, it is going to take superb negotiation and a concentrated educational effort by obstetricians, pediatricians, and hospital administrators to change these attitudes before there can be any material benefit from the advantages of regionalization. Hopefully, with persistent, unselfish educational effort this concept can still be accomplished on a voluntary basis.

COST

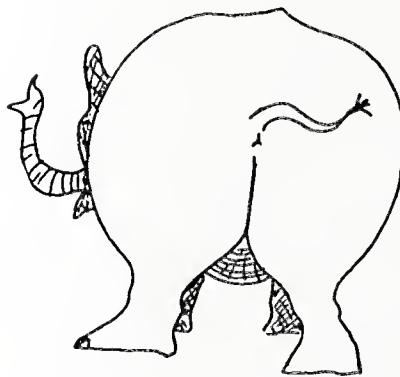
The high cost of medical care is one of the main issues exerting pressures for consolidation of obstetric care. A well-thought-out and reasonable plan will work only if the practicing obstetricians are willing to change methods and place of practice for the overall benefit of patient care, even if it means some personal sacrifice on their part.¹²

Another factor to be considered is the increasing threat of malpractice or increasing liability insurance premiums. Many groups, but particularly the legal profession, are showing increased interest in the "right to be well born".

The expectations of many who start this type of planning have far exceeded that which is likely to be accomplished within a matter of three or four years. This is not to say that it cannot be accomplished. While health planning councils and agencies do not really have teeth as yet, the teeth are coming. Communities will look twice at the high cost of providing multiple facility care.

Hospitals generally view the physician, not the patient, as the client or potential client utilizing their services. For the patient, hospital service is seen as an interruption in the normal pattern of living. When hospitalization is required, the patient tends to identify not with a given hospital, but rather with her physician, whose decision will, in most cases, determine the facility in which the patient is to be treated. A physician on the other hand, views a hospital as an integral aspect of one's professional life. It is only natural that the physician prefers to patronize a hospital

*Progress around here is like
mating an Elephant*



- ① Occurs at high levels only
- ② Is accompanied by much roaring, screaming & clouds of dust
- ③ Takes about two years to get results RFD

Figure 15.

located in close geographic proximity to his office.

The entire issue of consolidation as a vehicle for implementing more uniform and sophisticated obstetric neonatal care would never have arisen if it were not for recent medical and technological advances. An equal degree of administrative, political, and fiscal ingenuity is now required to develop and maintain a service delivery system which will facilitate the most fruitful application of this ever increasing body of technical knowledge. (Figure 15)

BIBLIOGRAPHY

1. Reichen, J.: *Am. J. Public Health* 88:331, 1960.
2. Vital Statistics Report, Nat'l Center for Health Statistics, 1972.
3. South Carolina, Regionalization of Perinatal Health Care, Vol. I, 1973.
4. South Carolina, Regionalization of Perinatal Health Care, Vol. II, 1973.
5. Arkansas Vital Statistics, Annual Report, 1972.
6. Hospitals, United States: Arkansas, 1972.
7. Report of Nat'l Task Force on Perinatal Health Services, July 1974.
8. Schneider, J., and Graven, S.: *Contemp. Ob-Gyn.*, Vol. 3 #2, 1973.
9. Mass. Dept. Public Health: New Regulations for Newborn Services, 1972.
10. Dinnerman, B.: *Am. J. Ob-Gyn.* 120:3, Oct. 1974.
11. Russell, K., Gardiner, S., Nichols, E.: *Am. J. Ob-Gyn.* 211:, March 1975.
12. Aubry, R.: *Clinical Ob-Gyn*, March 1973.

The Laparoscope in Gynecologic Diagnosis and Evaluation

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INTRODUCTION

In the short period of time since 1968, when this procedure was introduced into the United States following two decades of use in Europe,¹ gynecologic laparoscopy has revolutionized the practice of gynecology. It is now one of the most commonly performed gynecologic procedures.² It has provided every gynecologist a picture window into the lower abdomen and pelvis, yet avoids major abdominal explorations with their large incisions, pain, slow recovery, and significant risks. Laparoscopy offers rapid diagnosis, rapid recovery time, minimal cosmetic injury, much reduced cost, no post-operative sexual restriction, and reduced risks. Most simply stated, the laparoscope can do three things: 1) diagnose unknown problems; 2) evaluate known problems; and 3) be a surgical tool. This paper will deal primarily with the first two of these.

MATERIALS AND METHODS

Our six man private gynecological group began performing laparoscopy in March 1972. The records of 1,575 patients who had a laparoscopic procedure done by a member of our group in the 48 months between March 1972 and March 1976 were reviewed. Out of this group the 316 cases in which laparoscopy was performed for gynecologic diagnosis and evaluation only were studied.

All of the 316 cases were done under general anesthesia, usually with endotracheal intubation depending on the preference of the anesthesiologist. The age varied from 12 to 67 years with a median of 26 years. Obesity was not a contraindication. Eight patients weighed over 200 pounds. The average patient weighed 132 pounds with a range of 89 to 230 pounds.

Fifty-one percent of the patients were done as outpatients. Having had nothing by mouth since the previous midnight, they arrived at the

special "in and out" unit of our hospital early in the morning and were discharged the same afternoon.

Sixty-six (21%) had had previous abdominal surgery. Forty-six had had one previous procedure, nineteen had had two previous procedures, and one patient had had three previous procedures.

TABLE I. Indications for Laparoscopy

	Number of	
	Cases	Percentage
Pelvic Pain	175	55.4
Infertility	116	36.7
Endocrine Disorder	13	4.1
Pelvic Mass	10	3.2
Anatomic Defect	1	0.3
Lost IUCD	1	0.3
Total	316	100.0

As indicated in Table I, pelvic pain and infertility were the most common indications for diagnostic laparoscopy. Over half of the procedures were done in an effort to elicit the etiology of pelvic pain.

RESULTS

I. Pelvic Pain

One hundred seventy-five patients with the complaint of pelvic pain were evaluated by laparoscopy. Fifty-six percent of these (98 patients) had normal findings (Table II). Of those with abnormal findings: (A) twenty four patients had

TABLE II.
Findings at Laparoscopy for Pelvic Pain

	Number of	
	Cases	Percentage
Normal findings	98	56
Adhesions	24	14
Endometriosis	17	10
PID	15	8
Ectopic pregnancy	8	4
Functional ovarian cysts	5	3
Allen-Masters syndrome	4	2
Bleeding corpus luteum with hematoperitoneum	3	2
Acute appendicitis	1	1
Total	175	100

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pelvic adhesions present. Some of these could be lysed through the laparoscope, but two were so extensive that celiotomy was required. (B) Seventeen patients had endometriosis, four of whom required hysterectomy and bilateral salpingo-oophorectomy. Five of these patients required celiotomy at a later date. (C) Fifteen patients had pelvic inflammatory disease. Two of these had total abdominal hysterectomy and bilateral salpingo-oophorectomy immediately following laparoscopy while three had the same procedure done at a later date. (D) Eight patients with pelvic pain had an ectopic pregnancy, one of which was discovered before it had ruptured. (E) One patient with suspected ectopic pregnancy was found instead to have acute appendicitis. (F) Three other patients required immediate celiotomy because the laparoscope revealed hemoperitoneum secondary to a bleeding corpus luteum. (G) Functional ovarian cysts not requiring celiotomy were found in five patients with pelvic pain. The fluid from one functional cyst was aspirated through the laparoscope. (H) Fifteen patients with pelvic pain thought to be related to uterine retroversion had a uterine suspension performed with the aid of the laparoscope.

TABLE III.

Findings at Laparoscopy for Infertility

	<i>Number of</i>	
	<i>Cases</i>	<i>Percentage</i>
Normal findings	73	63
Endometriosis	18	16
Adhesions	8	7
PID	6	5
Polycystic ovaries	6	5
Tubal blockage	4	3
Unsuspected ovarian fibroma	1	1
Total	116	100

II. Infertility

Of the 116 patients with infertility, 73 patients (63%) had normal findings (Table III). Twenty-two (9%) subsequently became pregnant. Of those with abnormal findings: (A) eighteen had endometriosis. One of these required definitive surgery at the time of laparoscopy and two at a later date. (B) Eight infertile patients had pelvic adhesions. (C) Six had pelvic inflammatory disease. (D) Four had bilateral tubal occlusion. (E) In six infertile patients the ovaries had the enlarged glistening appearance of polycystic ovaries. (F) One patient had an unsuspected fibroma of the

ovary which required celiotomy for removal at the time of laparoscopy.

Prior to endometrial biopsy to detect recent ovulation, each infertility patient had tubal evaluation by instilling indigo carmine dye into the uterine cavity through the Semm's cannula. Spillage from the fimbriated end of the tube was visualized through the laparoscope.

III. Endocrine Evaluation

Thirteen patients had diagnostic laparoscopy for endocrine evaluation. Seven of these had hirsutism. Six had amenorrhea. The former seven were nonmenopausal women with abnormal hair growth. Laparoscopy revealed normal findings in four and polycystic ovaries in the other three. Of the six with amenorrhea, three had polycystic ovaries, one had streak ovaries, one had tiny ovaries and Turner's mosaicism, and one had immature ovaries and absence of the vagina.

IV. Suspected Pelvic Mass

The laparoscope was used to evaluate ten patients with a suspected pelvic mass. Two of these had ovarian serous cysts. One had a dermoid cyst. Each was removed by celiotomy at the completion of the laparoscopy. The suspected mass was discovered to be polycystic ovaries in two patients, functional cysts in two, and pelvic inflammatory disease in another. Laparoscopy showed a normal pelvis in one patient suspected of having a pelvic mass. Carcinoma of the right ovary was discovered in one patient with a suspected pelvic mass. Malignant cells were also found in the peritoneal fluid aspirated through the laparoscope.

V. IUCD Removal

One patient was spared celiotomy by having an intraperitoneal IUCD removed using the laparoscope. This was done on an outpatient basis. (Since the original compilation of this series we have removed another IUCD from the broad ligament by this same method).

Complications from diagnostic laparoscopy were rare. In two obese patients laparoscopy failed because of the inability to establish a pneumoperitoneum (one patient weighed 206 pounds and the other weighed 182 pounds). Both of these occurred early in the series. One patient developed herniation of the omentum through the umbilical trocar site three days following diagnostic laparoscopy.

DISCUSSION

General anesthesia is the most frequently utilized type of anesthesia for laparoscopy, with

endotracheal intubation being favored in most reports.^{3, 4} However, many do not feel intubation is an absolute necessity.^{5, 6} We have left the decision on intubation up to the individual anesthesiologist. Although there are avid proponents of local anesthesia,^{7, 8} we have never employed it.

While the mean age of our patients was 26, we had four patients under 16. One 14-year-old had almost intractable pelvic pain, but laparoscopy revealed a normal pelvis and appendix. One 15-year-old with hirsutism and secondary amenorrhea had polycystic ovaries. One adolescent aged 14 was diagnosed as having an atypical Turner's syndrome. Buccal smear revealed only 5% Barr bodies. Chromosomal analysis of peripheral blood leukocytes revealed a sex chromosome mosaicism of the type 45/XO (30%), 46/XX(70%). At laparoscopy she had two very small ovaries of normal macroscopic appearance instead of the usual streak ovaries seen in the classical Turner's syndrome. It has been demonstrated that even in a certain percentage of individuals with typical Turner's syndrome, some ovarian function exists, as manifested by menstruation or, very exceptionally, by pregnancy.⁹ Furthermore, in atypical Turner's syndrome with chromosomal mosaicism, a certain degree of ovarian development in the form of small ovaries is often encountered.¹⁰ It is evident that laparoscopy is not required in the diagnosis of Turner's syndrome, but it is essential in evaluating the status of the ovaries in order to know whether estrogenic therapy is to be administered or not, and also to give a more adequate prognosis of future secondary sexual development and fertility.

Our youngest patient was a 12-year-old referred by a urologist because of absence of the vagina discovered at the time of a urological workup which revealed congenital absence of one kidney. Endocrine studies were normal. Buccal smears were chromatin positive and she had a 46/XX karyotype. Diagnostic laparoscopy revealed complete absence of the uterus and cervix with tiny ovaries on each pelvic sidewall. Ovarian biopsy revealed immature ovarian tissue. This syndrome has been called by some the Rokitansky-Kuster syndrome.^{11, 12, 13}

Obesity can occasionally be a problem in laparoscopy, not only because of the cardiorespiratory problems, but also because the laparoscopic equipment is of limited length.⁴ Obesity was present in both of our patients in which the pneumo-

peritoneum could not be established, thus causing abandonment of the procedure.

Most of the patients early in this series were admitted to the hospital. However, as our experience has increased the trend has reversed so that most patients are now treated as outpatients. We have discovered that from the standpoint of ease, safety, and economy the outpatient concept is far superior. Others also have found this to be true.^{14, 15}

The frequency of previous abdominal surgery in laparoscopy varies between 11.6% and 33.2% in various studies.^{4, 16} In the 21% of our patients in this category, we have found this to be a negligible problem. Sometimes we employ the "syringe test" as a precautionary measure in patients who have a lower abdominal incision scar.

Our most common indication for diagnostic laparoscopy was to elicit the etiology of obscure pelvic pain. This has also been true in other series.^{4, 13} Obscure chronically recurring pain in the lower abdomen is among the most common complaint presented to us. Now with the aid of the laparoscope a proper diagnosis usually can be established. If significant pathology is found, definitive treatment can be offered. If a normal pelvis is found, re-evaluation of the problem is mandatory and frequently negates the demand for further surgery, as was the case in 98 patients.

Fourteen percent of the patients with pelvic pain had pelvic adhesions previously undiagnosed. Frangenheim noted adhesions in 10% of his patients laparoscoped for pelvic pain.¹⁷

Endometriosis was discovered in 10% of our patients with pelvic pain and in 16% with infertility. Often the disease is discovered in an early state not yet accessible by palpation, thus allowing for treatment before the disease causes extensive damage. In addition many patients thought to have endometriosis have been found to have a normal pelvis or pelvic inflammatory disease.

The usual clinical criteria for the diagnosis of pelvic inflammatory disease are correct only 65% of the time.¹⁸ By laparoscopy many of these patients are found to have a normal pelvis or endometriosis. Diagnostic laparoscopy resulted in an end to improper or unnecessary treatment. Chronic pelvic inflammatory disease was found in 8% of our patients investigated for pelvic pain and 5% for infertility.

A rather rare cause of pelvic pain is the Allen-Masters syndrome (sometimes called the universal joint syndrome or pelvic congestion syn-

drome).^{17, 19-21} The anatomic findings are lacerations in the broad ligaments often accompanied by retroflexion of the uterus and pelvic varicosities. This syndrome was discovered in 2% of our cases of pelvic pain. Frangenheim found it in 5% of his.¹⁷ The laparoscope is almost essential in making this diagnosis.

We have found, as have others,^{4, 13, 22} that laparoscopy is particularly useful for diagnosis early in the course of ectopic pregnancy. We have not used it in patients with massive hemoperitoneum where the diagnosis was obvious or celiotomy urgent.

We have also used the laparoscope for ancillary surgery at the time of diagnostic laparoscopy. We have performed lysis of pelvic or omental adhesions, ovarian biopsy, aspiration of peritoneal fluid for either culture or cytologic analysis, aspiration of functional cysts, removal of an intraperitoneal IUCD, and uterine suspensions. We have reported our success with laparoscopic uterine suspensions in 15 patients with symptomatic uterine retroversion who were already scheduled for laparoscopy for another reason. All 15 patients had complete relief of symptoms.²³

Laparoscopy has greatly increased the productivity of diagnostic efforts in female infertility.²⁴ In these patients unsuspected pelvic pathology is frequently found.²⁵ Short of celiotomy, laparoscopy and culdoscopy are the only procedures which allow the diagnosis of fimbrial phimosis, pelvic adhesions, anatomic abnormalities of the ovaries, endometriosis, and some types of uterine malformations. We agree with Israel²⁶ that endoscopy must be performed before the chart of a couple can be labeled "unexplained infertility." We have performed both culdoscopy and laparoscopy through the years, and have found the latter more convenient and easier to use, especially in so far as allowing celiotomy without changing the patient's position and more complete investigation of the internal pelvic organs.

Laparoscopy has played an important part in our investigation of some patients with hirsutism and amenorrhea. At times the cause is polycystic ovaries without detectable enlargement, even when pelvic examination is performed by experienced gynecologists.²⁷ We have found, as has Frangenheim,¹⁷ that an eye in the pelvis is much more accurate than two fingers in the vagina.

In most series the use of the laparoscope for diagnosis of a suspected pelvic mass is infrequent,⁴

as it was in 3% of our cases. However, one patient with a questionable pelvic mass was spared celiotomy because laparoscopy revealed normal findings.

Another patient was saved an exploratory celiotomy because we were able to remove her intraperitoneal IUCD employing the laparoscope. Uterine perforation is a well-known complication of intrauterine contraceptive devices. Depending on the type of IUCD employed, the uterine perforation rate has been reported as ranging from 1 per 150 to 1 per 2,000 insertions.²⁸ Peritonitis and/or intestinal obstruction may result from intraperitoneal IUCDs.²⁹ Thus, upon discovery, even asymptomatic intraperitoneal IUCDs should be removed electively.

There were three significant complications (0.9%). Two were cases of failed laparoscopy due to inability to establish a successful pneumoperitoneum because of extraperitoneal injection of carbon dioxide. In each instance the patient recovered without incident. These failures likely were related to operator inexperience and patient obesity. Each occurred soon after we began doing laparoscopy, and has not occurred since. Studies have shown that this complication is five times more frequent in surgeons with experience of fewer than 100 cases as compared to those with greater experience.³¹

The third significant complication was herniation of the omentum through the umbilical trocar site. This occurred three days following laparoscopy for a suspected pelvic mass which was discovered to be a functional ovarian cyst. The protruding omentum was excised and the remaining omentum pulled through the fascial defect which was then repaired through a lower midline incision beneath the defect. The postoperative course was uneventful. This complication has only been reported six times.^{4, 30}

CONCLUSIONS

Three hundred and sixteen gynecologic patients in which laparoscopy was used for diagnosis and evaluation were studied. The incidence of complications was low and has become even lower as our experience has increased. The instrument was invaluable in the rapid, efficient work-up of patients with pelvic pain, infertility, endocrine disorders, and suspected pelvic masses, providing a panoramic view of the female pelvis while frequently obviating the need for major abdominal exploratory surgery.

BIBLIOGRAPHY

1. Gunning, J. E.: History of laparoscopy. *J. Reprod. Med.* 12:222-226, 1974.
2. Schwimmer, W. B.: Laparoscopy in family planning. *J. Reprod. Med.* 13:218-222, 1974.
3. Keith, L., Silver, A., Becker, M.: Anesthesia for laparoscopy. *J. Reprod. Med.* 12:227-233, 1974.
4. Loffer, F. D., Pent, D.: Indications, contraindications, and complications of laparoscopy. *Obstet. Gynecol. Surv.* 30:407-427, 1975.
5. Edgerton, W. D.: Laparoscopy in the community hospital: set-up, performance, control. *J. Reprod. Med.* 12:239-244, 1974.
6. Peterson, E. P.: Anesthesia for laparoscopy. *Fertil. Steril.* 22:695-698, 1971.
7. Wheelless, C. R.: Anesthesia for diagnostic and operative laparoscopy. *Fertil. Steril.* 22:690-694, 1971.
8. Thompson, R. J., Mojadidi, Q., Beadling, L.: Laparoscopy sterilization under local anesthesia. *Obstet. Gynecol.* 39:635, 1972.
9. Cognat, M., Papathanassiou, Z., Gomel, V.: Laparoscopy in infants and adolescents. *J. Reprod. Med.* 13:11-12, 1974.
10. McDonough, P. G., Byrd, J. R., Freedman, M. A.: Gonadal dysgenesis with ovarian function. *Obstet. Gynecol.* 37:868-872, 1971.
11. Rokitansky, K.: Über die sogenannten verdoppelungen des uterus. *Med. Jahrb. Österreich. Staates* 26:39, 1838.
12. Kuster, H.: Uterus bipartitus solidus rudimentarius cum vagina solida. *Z Geburtsh Gynak* 67:692, 1910.
13. Cox, D. W., Herrmann, W. L.: Evaluation of the patient with apparent absence of the vagina. *Contemp. Obstet. Gynecol.* 3:109-116, 1974.
14. Pent, D., Loffer, F. D.: Laparoscopy at the Surgi-center. *J. Reprod. Med.* 10:239-242, 1973.
15. Fishburne, J. I., Jr., Fulghum, M. S., Hulka, J. F., et al: General Anesthesia for outpatient laparoscopy with an objective measure of recovery. *Anesth. Analg.* 53:1-6, 1974.
16. Kleppinger, R. K.: One thousand laparoscopies at a community hospital. *J. Reprod. Med.* 13:13-20, 1974.
17. Frangenheim, H., Kleindienst, W.: Chronic pelvic disease of unknown origin. *J. Reprod. Med.* 13:23-26, 1974.
18. Jacobson, L., Westrom, L.: Objectivized diagnosis of acute pelvic inflammatory disease. Diagnostic and prognostic value of routine laparoscopy. *Am. J. Obstet. Gynecol.* 105:1088-1098, 1969.
19. Taylor, H. C.: Pelvic pain based on a vascular and autonomic nervous system disorder. *Am. J. Obstet. Gynecol.* 67:1177-1196, 1954.
20. Allen, W. M., Masters, W. H.: Traumatic laceration of uterine support. *Am. J. Obstet. Gynecol.* 70:500-513, 1955.
21. Atkinson, S. M.: The universal joint syndrome. *Obstet. Gynecol.* 36:510-514, 1970.
22. Corson, S. L., Bolognese, R. J.: Laparoscopy: an overview and results of a large series. *J. Reprod. Med.* 9:148-157, 1972.
23. Smith, D. B., Kelsey, J. F., Sherman, R. L., et al: Laparoscopic uterine suspension. *J. Reprod. Med.* In press.
24. Roland, M., Leisten, D., Kane, R.: Fertility studies by means of laparoscopy. *J. Reprod. Med.* 10:233-238, 1973.
25. Peterson, E. P., Behrman, S. J.: Laparoscopy in the infertile patient. *Obstet. Gynecol.* 36:363-367, 1970.
26. Israel, R.: The impact of laparoscopy on gynecology. *J. Reprod. Med.* 10:230-232, 1973.
27. Northrop, G., Archie, J. T., Patel, S. K., et al: Adrenal and ovarian vein androgen levels and laparoscopic findings in hirsute women. *Am. J. Obstet. Gynecol.* 122:192-198, 1975.
28. Burnhill, M. S., Binberg, C. H.: Uterine perforation with intrauterine contraceptive devices. *Am. J. Obstet. Gynecol.* 98:135-140, 1967.
29. Schwartz, G. F., Markowitz, A. M.: Serious sequelae of intrauterine contraceptive devices. *JAMA* 211:959-960, 1970.
30. Bishop, H. L., Halpin, T. F.: Dehiscence following laparoscopy: report of an unusual complication. *Am. J. Obstet. Gynecol.* 116:585-586, 1973.
31. Phillips, J., Keith, D., Hulka, J., et al: Gynecologic laparoscopy in 1975. *J. Reprod. Med.* 16:105-117, 1976.
32. Pent, D.: Laparoscopy: its role in private practice. *Am. J. Obstet. Gynecol.* 113:459-468, 1972.



The Evaluation of Male Infertility

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With the increasing availability of contraceptive measures and abortions, the number of children available for adoption has decreased considerably. Thus, for the relatively infertile couple who desires children, an important alternative has been removed. The primary avenue remaining is the procreation of their own child. A cursory evaluation of the infertile couple and a short treatment plan prior to the recommendation of adoption or the use of donor semen for insemination (AID) has too often been the rule.

The purpose of this communication is to outline briefly for the physician in family practice the evaluation of the male required when presented with a relatively infertile couple. The merits of a couple-oriented, professional team-effort are indicated.

Definition

A couple is considered to be relatively infertile if a pregnancy has not resulted following one year of unprotected coitus. The term relatively infertile is used to indicate the theoretical consideration that if an ovum and any sperm are present conception is possible.

Incidence

Approximately 30 percent of couples are affected by problems of relative or absolute infertility sometime during their reproductive life. The male may be primarily implicated in approximately 40-50 percent of infertility problems. Failure of ovulation may account for 10-15 percent. An estimated 20-30 percent are caused by tubal pathology, while in 5 percent a cervical factor may be associated with the infertility. As many as 10-20% of couples may have no detectable cause for their infertility. In many instances factors related to infertility are multiple and reside in both husband and wife. This stresses the need for greater accuracy and efficiency of simultaneous coordinated studies in both husband and wife.

The Couple-Oriented Evaluation

The wife usually presents herself alone to be evaluated for infertility. Frequently, the evaluation of the wife proceeds to an operative procedure prior to the evaluation of the husband

who may have reproductive deficiencies. It is important that both be present initially. This allows the physician to assess the couple's attitudes regarding a child and towards each other and to orient the couple as to efficiency in time, effort and expense of parallel analysis of both partners. Enlistment of their complete cooperation is a requisite for a successful program. Infertility in a marriage often creates an emotional, trying period of adjustment or attempted solution. The early involvement with a sympathetic, understanding physician can provide much needed support for the couple's success in handling and perhaps remedying their distressful situation. The requirements and significance of steps in the evaluation should be explained in lay terms. It should be made clear that consistent participation of the couple will be required for six to eighteen months. Patients easily become discouraged if the physician does not present a goal-oriented, sequential plan that will give them confidence.

The couple's presence together for initial orientation and examination lessens the anxieties, feelings of guilt and the embarrassment, particularly for men, which often accompanies infertility evaluations. Historical information usually is more accurate with both partners present. The evaluation and requirements of each member in the program may be derived without the risk of misunderstanding which often occurs when information is conveyed home only by the wife. The team concept should be established early, to emphasize not only the cooperation and importance of both husband's and wife's efforts in achieving a pregnancy, but also that of the professionals involved in diagnosis and therapy.

The Basic Evaluation

The basic evaluation consists of eight categories of investigation.

- 1) History and physical examination of the wife, including basic laboratory studies.
- 2) History and physical examination of the husband, including basic laboratory studies.
- 3) Evaluation of seminal factor.
- 4) Evaluation of cervical factor.
- 5) Evaluation of uterine factor.
- 6) Evaluation of tubal factor.
- 7) Evaluation of peritoneal factor.
- 8) Evaluation of ovarian activity.

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Evaluation of Male Infertility

The initial evaluation of the husband is concerned with obtaining a general and sexual history. A general medical history should be obtained including a history of venereal infection, mumps orchitis, history of chronic diseases, or recent high fever. A history of previous herniorrhaphy, orchiopexy, hydrocelectomy, or genital injury also is needed. A history of abnormal sexual development, delayed puberty, or use of hormonal agents during childhood or adolescence should be obtained. The nature of the patient's work, his exposure to chemicals, irradiation, or extreme temperature, and his work habits should be known. The type of underclothing, either close fitting or loose, should be known. Pertinent inquiries should be made regarding his fertility with his present spouse, previous spouses or others. The husband should be asked if he has had any previous evaluation or therapy for infertility. He should be asked about the adequacy and shape of his erection, actual coital techniques, frequency of intercourse, and his ejaculation. Previous history of lower urinary tract infections, prostatitis, urethritis, or urethral discharge should be obtained. A history should be obtained of chronic medication or drug use.

The physical examination should include an assessment of the general body habitus noting fat distribution and hair distribution. The physical status of other organ systems should be assessed. The physical examination of the genitalia should include the size and shape of the penis, including the position and size of the urethral meatus, the size and consistency of the testes, epididymis and vas. A careful search for varicoceles should be done, particularly on the left side, and with the patient standing and straining. The size and consistency of the prostate should be noted.

Each of the stated aspects of the history and physical examination have some significance in regard to fertility. Generally, increased testicular temperatures have a deleterious effect on spermatogenesis, hence, the inquiries of the patient regarding recent high fever, exposure to high temperature, such as at work or in the bath or sauna, and tight clothing or underwear which holds the testicles close to the body. Varicoceles have been noted to be associated with poor semen quality which resolve frequently following varicocelectomy. Loss of testicular parenchyma, damage to the testicular vasculature or obstruction of the

seminal ducts (epididymis or vas) may result from previous trauma, surgical procedures, or infections involving the genitalia, groin or lower urinary tract. A history of prolonged cryptorchidism even unilateral may give indication of a testicle with decreased capabilities of spermatogenesis. The history related to coitus may disclose information regarding premature ejaculation, preference for a coital position which allows only partial deposition of semen within the depths of the vagina, infrequent coitus or ejaculation (> every seven days) or frequent intercourse (once a day or more). Frequent ejaculation often progressively diminishes the number of sperm cells in the ejaculate. Infrequent ejaculation may result in a decreased ejaculate quality.

Obesity may be an important factor as regards general health and specifically as regards testicular temperature. Endocrinologic abnormalities may be suggested both by fat and hair distribution. A small or improperly undescended testicle, an irregular fibrotic vas or epididymis may be noted signaling inadequate testicular substance or indicating evidence of vasal or epididymal obstruction.

A hypospadiac meatus or meatal stenosis may be noted which would contribute to poor deposition of semen within the depth of the vagina.

Laboratory data should include a urinalysis, complete blood count and serologic test for syphilis.

Semen Analysis

The analysis of semen is the most important diagnostic test in the evaluation of male infertility and its proposed therapy. It is unfortunate, therefore, that it is too frequently a neglected aspect of the couple's infertility evaluation. It often is performed without the care, expertise and thoroughness required. The "sperm count" or density of spermatozoa is not really a semen analysis, even if accompanied by observations on the number of normal motile cells. Very few laboratories or infertility centers perform a complete or even adequate semen analysis.

Observations and tests in a semen analysis should include: color, odor, obvious inclusions, coagulation, liquefaction, viscosity, volume, cell count (density), percent motility, movement (kind, activity, speed and duration), percent viability (membrane integrity), abnormal cells (kind and percent), foreign cells, glycerol (osmotic) sensitivity, cryosensitivity (percent survival during freeze-

thawing) and detection of gonococci or other microorganisms.

A period of three to five days abstinence, to allow for the peak in semen quality, should precede each collection for analysis. A semen evaluation requires three complete semen analyses, not just one, because of possible variations from ejaculate to ejaculate.

Rationale for Aspects of the Semen Analysis

1) Color and odor sometimes suggest use of drugs by the patient or accessory gland irregularities. Gel casts, and the like, represent a semen volume which most often are spermatozoa-free and should be subtracted in the calculation of total volume for total cell count measurements.

2) Coagulation, liquefaction and viscosity are related but may have a different basis and significance. Coagulation and liquefaction are enzyme related while the nature of viscosity alterations are unknown. The inability of semen to coagulate is a diagnostic sign that there is azoospermia and attendant sterility due to the congenital absence of the vas deferens and the seminal vesicles. The secretion of these structures is necessary for coagulation.

Inability to liquefy after coagulation or maintenance of high viscosity after liquefaction may reduce fertility, especially in oligospermia. The spermatozoa may become trapped or slowed in the gel or glue-like medium.

Coagulated semen can be liquefied by proteolysins or alpha-amylase. High viscosity can be reduced by mechanical disruption through a small orifice (syringe and needle) or by the addition of Alevaire, without apparent damage of spermatozoa.

3) Count (density of spermatozoa in millions per milliliter) provides an index for oligospermia, a definite correlate for infertility. The figure varies but less than 90 million motile cells per ejaculate is considered by many to be oligospermia. The count is rarely of sole significance, as other characteristics of cell quality, some undetected, are of contributory importance to infertility. True oligospermia is almost always designated in counts of less than 20 million/ml.

4) Motility is of more importance than cell density of spermatozoa in fertility. A low percentage (less than 40%) of cells and/or a high percentage of cells with irregular, circular, oscillatory and sluggish activity is often associated with in-

fertility. It is the reduced number of motile cells with normal activity and structure which appears to be critical. Motility should remain fairly constant during a stay of three hours at room temperature. A rapid fall indicates abnormal reaction to *in vitro* stress and possible difficulties *in situ*, which should be tested in cervical mucus.

5) Viability or "live-dead" staining technique is based upon membrane permeability of the cell to eosin. An intact cell membrane is impermeable to the stain, while injury or "death" of the cell will permit intracellular staining by eosin. The live-dead designation is questionable, but the indication of membrane integrity is valid. The eosin-nigrosin staining favors this latter application, plus the observations and measurements for morphology, on the same slide. The technique has merit, also, in detection of intact cells which are immotile, when compared with a higher percent motility rating. This pin-points the motility mechanism, itself, rather than injured or dead cells as the cause of low % motility.

6) Glycerol or osmotic sensitivity (or toxicity) is another stress test along with that of cryosensitivity. In addition to detecting such qualitative weaknesses in spermatozoa, both observations aid in predicting the cryosurvival potential of such semen in cryobanking.

7) Morphology is of considerable importance, along with cell count and motility. It represents an aspect of testicular integrity in functional spermatogenesis. There is good correlation between a high percentage of head and midpiece abnormalities and reduced fertility. Stained preparations are best for observations which will suggest a possible cause for reduced fertility if over 25 percent of the cells are abnormal in structure. Immature forms (early stages in spermatogenesis which appear in semen as a consequence of developmental disturbances in the tubular epithelium) are fairly common in oligospermic individuals.

8) Foreign cells often are part of the semen population. Epithelial cells from the tract lining are of little consequence unless in great numbers which may indicate damage. Leukocytes indicate infection if numbers are abnormally high and should prompt evaluation. Erythrocytes, leukocytes and epithelial cells together in significant numbers may signal lesions and/or infection of the seminal tract which deserve attention.

Testicular biopsy is not a routine procedure. It

should be pursued only if it is necessary for testicular analysis and in-depth studies of spermatogenesis.

Discussion

Although little is known of male infertility, that which is known may be quite beneficial to selected patients. As stated previously, wearing of loose clothing, including underwear, the avoidance of hot baths, and decreasing the frequency of ejaculation to once every three to five days may be helpful. The cessation of a medication may be of benefit. The discovery of a varicocele merits consideration of a varicocelectomy. The detection of a large volume (> 4.5 ml.) in semen analysis may suggest that the patient split his ejaculate and thus relatively increase his sperm count by withdrawing during intercourse generally following the ejaculation of about the first 2 cc. of sperm containing semen. The discovery that there is agglutination of sperm or nonliquefaction of the semen indicates potentially correctable abnormalities. Treatment of infections of the prostate and/or seminal collecting structures may enhance fertility.

Semen cryobanking permits the storage, concentration and insemination of the subfertile husband's semen (AIH) which may serve to favor fertilization by delivering many more spermatozoa than normally possible and by coinciding better with the wife's time of ovulation. Insemination of donor semen (AID) is also improved by storage of donor semen with a variety of desired characteristics which are readily available.

The medical management of male infertility is limited to only a few drugs which should be used judiciously following proper chemical evaluations. The physician who is undertaking the medical treatment of male infertility should familiarize himself with the recent and changing literature on the subject.

At the College of Medicine (University of Arkansas Medical Sciences Campus) we have developed a couple-oriented infertility program to combine the infertility interests and skills of members of the Departments of Obstetrics and Gynecology, Urology and Anatomy. On physician referral, a detailed evaluation of the man and woman as a couple is undertaken, and a detailed semen analysis is accomplished. The UAMS has a functional semen bank for the clinical use of frozen-stored semen which functions as part of the couple-oriented infertility program in cases which require therapeutic insemination. Apart from the couple-oriented program, complete semen analysis and/or urologic evaluation of the male patient is available also on physician referral.

Summary

An introduction to the importance of the evaluation of male infertility in a couple-oriented program of infertility evaluation is presented. It is designed to stimulate a more thoughtful approach to the analyses and treatment of infertility and to favor the appreciation of new ideas and techniques in its treatment.

REFERENCES

1. Speroff, L., Glass, R. H., and Kase, N. G.: Investigation of the Infertile Couple, in *Clinical Gynecologic Endocrinology and Infertility*, Baltimore: Williams and Wilkins, 172, 1973.
2. How to Organize a Basic Study of the Infertile Couple, American Fertility Society, 1971.
3. Amelar, R. D., and Dubin, L.: "Male Infertility. Current Diagnosis and Treatment," *Urology*, 1:1, 1973.
4. Sherman, J. K.: "Synopsis of the Use of Frozen Human Semen Since 1964: State of the Art of Human Semen Banking," *Fertility and Sterility*, 24:397, 1973.
5. Uruy, R. L.: "Progress in Diagnosing and Treating Male Infertility," *Contemporary Surgery*, 8:43, 1976.
6. Anderson, R. E.: Male Infertility, in *Fundamentals of Urology*, Philadelphia, W. B. Saunders Company, 521, 1976.
7. Progress in Infertility, Behrman, S. J., and Kritner, R. W., Eds., p. 765, Little Brown and Co., Boston, 1975.





Office Orthopaedics

Colles' Fracture

Kenneth G. Jones, M.D.*

As a rule, the frequently encountered fracture described by Colles in 1814¹, (an extra-articular fracture located "about an inch and a half above the carpal extremity of the radius") can be reduced easily under a local anesthetic such as 1% lidocaine without adrenalin introduced into the fracture site. Though once reduced and properly immobilized, it constitutes an inherently stable fracture; too often as a consequence of improper immobilization, recurrence of the original angulatory deformity develops during healing. The challenge is not reduction of the fracture but is maintenance of the reduction throughout the healing period while avoiding undesirable sequelae. The reader is cautioned that when the author suggests the reduced fracture is inherently stable he is referring specifically to the simple transverse fracture of the distal metaphysis of the radius. He is not referring to those fractures which, as a consequence of comminution and/or extension into the wrist joint, are inherently unstable. Barton's fracture, and extremely comminuted fractures of the distal end of the radius present themselves as entirely different surgical challenges and, not infrequently, need to be treated by methods other than those to be considered.²⁻⁵

The functional result in simple Colles' fractures is frequently comprised by recurrence of the original "silver fork" deformity, atrophy of the intrinsic muscles of the hand and subcutaneous tissue, the development of circulatory deficiencies, limitation of motion in all articulations below the elbow joint, hyperesthesia or hypesthesia in the fingers and thumb, causalgia, Sudeck's atrophy and even soft tissue sloughs. If the surgeon is to avoid undesirable complications, the fracture

must be reduced and adequately immobilized from the outset. Too, the surgeon must remain alert to potential complications. Greater than usual discomfort of a patient who initially presented himself with a marked deformity should alert the surgeon to the possibility of damage to the median nerve—a traumatic carpal tunnel syndrome. In these instances, cervical sympathetic blocks and/or a carpal tunnel release of the wrist may be indicated. In that event, extra-skeletal stabilization of the fracture will be required to maintain the reduction while treating the complication. Extreme volar flexion, the so-called Cotton-Loder⁶ position, should be avoided as it may precipitate this complication or produce a slough of soft tissues opposite the volar aspect of the wrist joint. Wrist flexion should never be resorted to, to maintain reduction of this fracture. Circular plaster molds, because of their lack of accommodation of swelling and regression of swelling have no place in the initial management of this fracture. Following manipulation, as a rule, the reduced position obtained can be maintained throughout the healing period by the correct application of the principle of the three points of pressure described by Charnley³ which construct a simple force vector. Immobilization of the fracture by this means can be depended upon to accomplish the end desired. But, once again, the reader is cautioned that the author at present is considering only one specific type of fracture of the distal metaphysis of the radius which is wholly extra-articular and is not comminuted. It must be evident that the principle of three points of pressure, when applied in reverse, would be equally applicable to Smith's fracture—the reverse injury of the Colles' fracture.

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A fracture of the distal radius may or may not be accompanied by a fracture of the base of the ulnar styloid process. If present, this injury, for purposes of management, may be regarded to be self-correcting. It is the dorsal angulation and the radial deviation of the hand and the disruption of the distal radio-ulnar joint, when present, that must be corrected and maintained throughout the healing period if the patient is to obtain a satisfactory anatomical and functional result. It has been observed that uncorrected or recurrent radial shortening of the forearm is often more disabling than uncorrected or recurrent dorsal tilt of the radius.^{1, 8, 9} As Colles and others have observed, the patient whose fracture has healed with some residual deformity may find solace in the fact that after a year or so many of that group do attain a plateau of satisfactory function even though they continue to display the anatomical deviation throughout the remainder of their lives. This is especially true in older patients where only limited function is essential. Even so, best results can be anticipated when an anatomical reduction has been obtained by closed manipulation and maintained by plaster immobilization until the fracture is stable. This should never require more than three to four weeks; after which time, the use of plaster is discontinued and vigorous physical therapy is instituted. Though not generally appreciated, recurrence of a once corrected "silver fork" deformity is often the result of the dynamic bowstringing effect of the extrinsic extensors which traverse the concave side of the fracture in a loose plaster environment. For this reason, in addition to those mentioned earlier, the flexed wrist position so frequently used should not be resorted to. It is obvious, when considered, that wrist flexion will increase the dynamic tension across the fracture site and will thereby introduce a force conducive to reproduction of the original "silver fork" deformity. It is the author's belief that following reduction immobilization with the wrist in flexion is the most frequently encountered factor which contributes to recurrence of the original deformity. The surgeon who has seen sloughs of the soft tissues, including tendons and nerves, on the volar aspect of the wrist following immobilization of the fracture with the wrist in extreme flexion will not resort to that position. On the contrary, the fracture should be immobilized with the flexor and extensor mechanisms which traverse the fracture site in a neutral position as regards flexion and extension at the wrist

but with the hand fully deviated at the wrist to the ulnar side of the forearm. The distal end of the ulna, which is stable, is used as a fulcrum over which the proximal row of the carpal bones is levered in order to place traction on the distal fragment of the fractured radius through the soft tissues which are attached to it. The forearm should be immobilized in a mid-position. Compression and angulatory forces across the fracture site are reduced to a minimum thereby. However, even this position which is as dynamically neutral as one can attain cannot, by itself, be depended upon to prevent recurrence of the deformity. A proper splint must be applied and worn by the patient until the fracture is stable. The position described will provide the most functional position from which to begin mobilization of the forearm and hand after discontinuance of plaster. Immobilization can best be accomplished by means of a sugar tong plaster splint⁷ which is applied from the distal palmar crease proximalward along the volar aspect of the forearm, around the elbow joint and back down along the dorsal aspect of the forearm, to a point just proximal to the metacarpal heads incorporating the principles of three points of pressure.³ The splint itself is made of 12 to 14 thicknesses of plaster after determining the required length by measurement on the normal extremity. It is prepared by unrolling rolls of plaster onto a flat surface to construct a splint of the proper thickness and required length.

After the anesthetic is effective and prior to application of the splint, the fracture is manipulated and reduced. Force is applied in reverse to the force that produced the deformity. This can be accomplished most easily by the surgeon placing his back to the patient while holding the distal forearm in both his hands with all fingers beneath the proximal fragment of the radius and both thumbs over the dorsal aspect of the distal fragment. Application of pressure in this manner will effectively produce a reverse arc of motion to that which precipitated the fracture. Reduction is usually accomplished easily. Prior to applying a soft padding, such as Webril, over which plaster will be applied, two felt pads are secured to the skin by tincture of benzoin or any other tacky substance. (Figure 1) One pad is applied over the dorsal aspect of the distal fracture fragment while a second pad is applied on the volar aspect of the forearm just proximal to the fracture site. A third point of pressure is obtained without any special

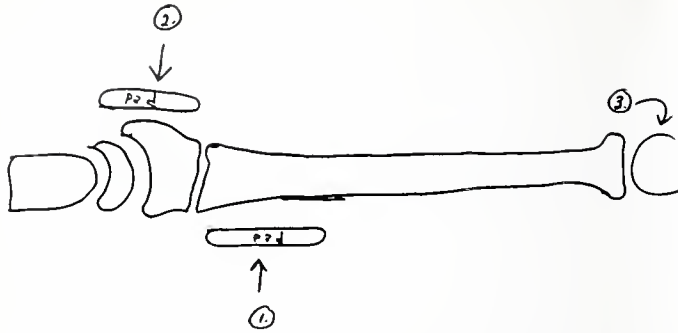


Figure 1

effort on the part of the surgeon. It will be located over the lateral epicondyle of the elbow joint when the forearm is in a mid-position. The volar pad constitutes the fulcrum of the three point force vector. A soft roll-type of padding is applied over the palm of the hand, the two felt pads, and continued up the forearm and about the elbow. The pre-prepared splint is then applied from the palmar surface of the hand along the volar surface of the forearm around the elbow and down along the dorsal aspect of the forearm and hand while the forearm is held in a vertical plane by an assistant who maintains traction on the fingers. The splint is secured in place by regular three inch gauze rolls which are wet prior to application to permit accurate contouring. After the splint has been secured to the forearm, the surgeon should once again apply a reverse force to the fracture. And once again, this is accomplished at the point of fixation of the volar pad and his thumbs on the dorsal aspect of the splint opposite the point where the pad has been affixed over the dorsal aspect of the distal fragment. Firm pressure is maintained in these areas until the plaster has set. Care is taken not to produce unusual indentations or contours of the plaster during this phase of splint application which might result in skin necrosis. Special attention is devoted to obtaining full ulnar deviation at the wrist and minimal wrist flexion. (Figure 2)

After the plaster has set, post-reduction films are made. The extremity is elevated, ice packs applied over the wrist, and, on occasions, the patient is given enzymes to minimize the postreduction swelling. In addition, great care is taken to acquaint the patient with the signs and the symptoms of a vascular deficiency which would be seen in any hand and forearm secondary to excessive swelling. He is directed to return to the emergency room at any time should he feel that there is a possibility he is developing a deficiency in circulation. Today, great care is also taken, to make a record that these instructions have been

given. On those rare occasions when swelling becomes a problem, and the patient presents himself, the splint is loosened by cutting through the gauze and soft roll down to the skin with bandage scissors along the ulnar border of the hand and forearm to the elbow. The splint is then



Figure 2

spread with a cast spreader one-quarter of an inch, after which it is re-wrapped. The spread splint will again be tightened at a later date after swelling has regressed but before the reduced position of the fracture can become compromised. When the patient becomes ambulatory, a sling is added. Shoulder motion and finger motion are encouraged from the outset.

As a rule, the patient is discharged from the emergency room after initial treatment to his home with the request that he return to the physician's office at the end of 10 days for radiographic examination of the fracture through plaster. The fracture is still malleable at this time so adjustment if indicated is possible. If a satisfactory position has been maintained and swelling has regressed, the sugar tong splint is tightened by converting it to a circular plaster mold. Two three inch plaster rolls are wrapped snugly about the splint to tighten it. If the radiograms revealed any evidence of recurrence of the deformity, after converting the splint to a cylinder mold, open wedging of the plaster can be resorted to. The dorsal half of the splint is cut while maintaining the volar half intact to act as a hinge. Wedging is effected at a level just proximal to the fracture site so that the distal forearm can be brought into a few degrees of flexion at the fracture site—not at the wrist level. After correction of any recurrent deformity has been confirmed by radiograms, the open wedge in the mold is closed by additional circumferential wrapping with plaster. However,

when the three point pressure technique has been applied properly at the time of reduction, seldom, if ever, will wedging of the cast be required to correct a recurrent deformity.

The three point pressure technique of immobilization can be applied to other fractures.³ It is especially useful in most fractures of the forearm seen in children. Where applicable, it offers the most reliable closed means of maintaining the reduction obtained and of avoiding complications.

BIBLIOGRAPHY

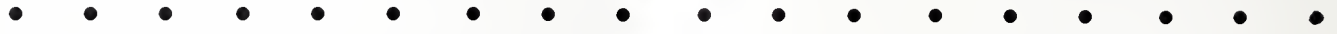
1. Bacorn, R. W., and Kurtzke, J. E.: A study of two thousand cases from the New York State Workmen's Compensation Board. *J. Bone and Joint Surg.*, 35-A, 643-658, 1953.
2. Brindley, H. H.: Wrist Injuries. *Clin. Orthop.* 83: 17-23, Mar.-Apr., 1972.
3. Charnley, J.: The Closed Treatment of Common Fractures, 2nd edition, p. 37, The Williams and Wilkins Company, 1957.
4. Colles, Abraham: Fractures of the carpal extremity of the radius. *Edinburgh Med. and Surg. J.* 10: 182-186, 1814.
5. Conwell, H. E., and Vesley, D. G.: Fractures of the distal radius in adults. *Clin. Orthop.* 83: 13-16, Mar.-Apr., 1972.
6. Cotton-Loder Position, Key, J. A., and Cornwell, H. E.: The Management of Fractures, Dislocations, and Sprains, 4th edition, pp. 777-778, the C. V. Mosby Co., 1946.
7. Gartland, J. J.: The Sugar Tong Splint. *Am. J. of Ortho.* Vol. 5, #5, 131, May 1963.
8. Mason, M. L.: Colles' fracture, a survey of end results. *The Brit. J. of Surg.* Vol. 40, 340-346, 1952-1953.
9. Rogers, S. C.: An Analysis of Colles' fractures. *British Medical Journal*, Vol. 1, 807-809, 1944.





ELECTROCARDIOGRAM

OF THE MONTH

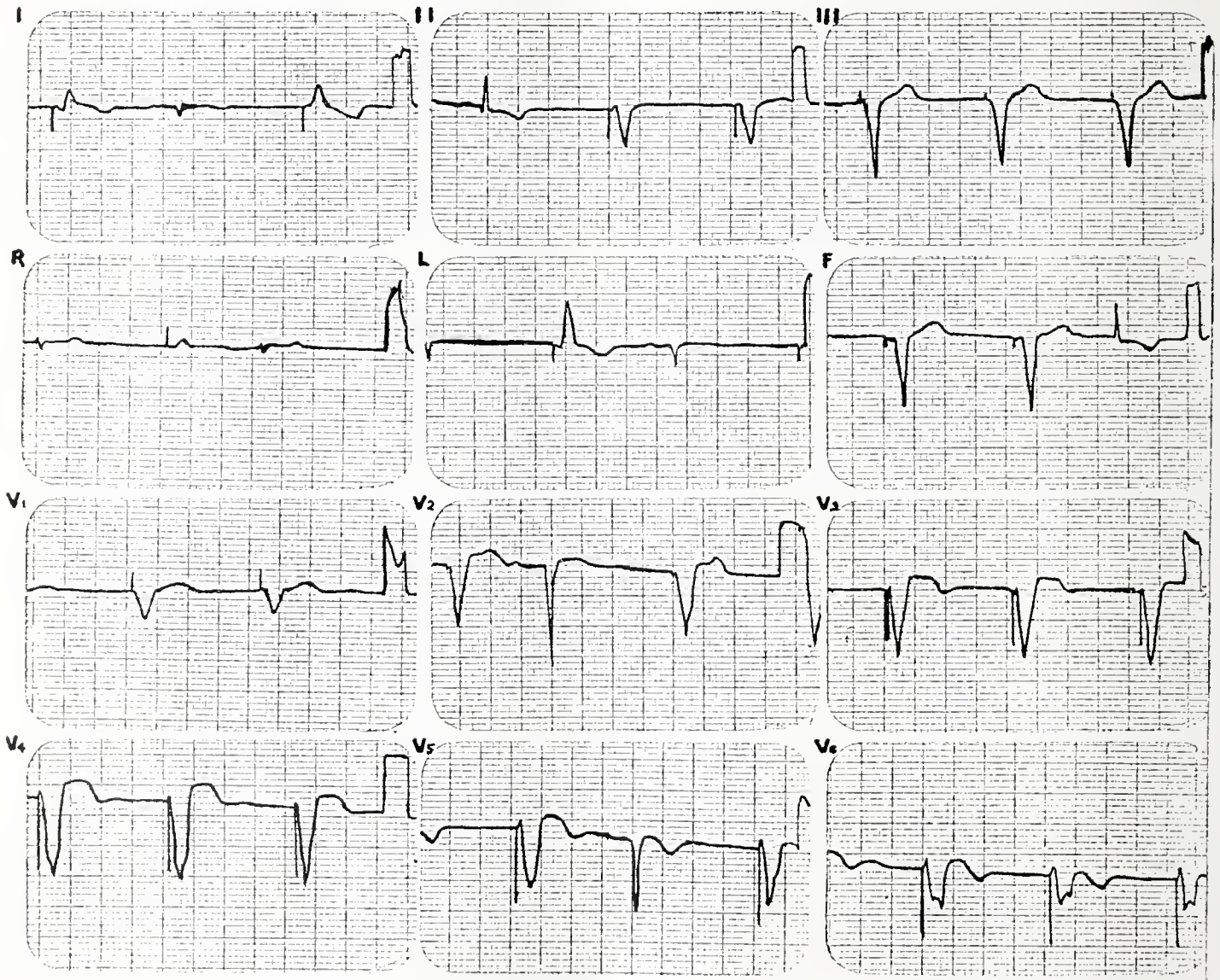


The Department of Cardiology, University of Arkansas College of Medicine

(See Answer On Page 259)

W. A. 55-year-old female with a transvenous bipolar pacemaker—Metronic 5950.

1. Is pacemaker functioning appropriately?
2. Where is the pacemaker?
3. What is the underlying rhythm and medical problem?



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Rabies in Rodents and Lagomorphs

Robert T. Howell, Dr.P.H.*

Every day, and usually two or more times a day, the Division of Public Health Laboratories, Arkansas Department of Health, receives inquiries regarding the probability of someone getting rabies through the bite of some small, usually a pet, rodent, squirrel or rabbit. Frequently it is a child bitten while playing with a white mouse, a hamster, guinea pig or gerbil. At certain times of the year it will just as likely be a man, bitten while handling the squirrel he has just "killed". I'm sure many similar calls go to the Divisions of Communicable Disease Control and Veterinary Public Health. To answer some of these questions, a table has been prepared to give the results of laboratory examinations on rodents and lagomorphs in this laboratory during the past eight years (Table I), using the Sellers and the Fluorescent Rabies Antibody (FRA) staining techniques.

On a total of 2,455 examinations on squirrels (791), rats (523), mice (312), hamsters (254), rab-

bits (293), and lesser numbers of others, we have not found a single one to be infected by or carrying the rabies virus. This agrees with findings from Georgia,¹ where rodents and rabbits are no longer examined for rabies unless such an animal has actively attacked and bitten a person without any provocation; from Florida^{2, 3} where it is reported that of approximately 400 gray squirrels examined each year, none have been found to have rabies, the last squirrel to have rabies was over sixteen years ago; and from Oklahoma⁴ which will no longer examine cage-raised rodents for rabies.

In 1972, Dr. William G. Winkler, Viral Diseases Branch, Epidemiology Program, Center for Disease Control, Atlanta, Georgia, reviewed the status of rodent rabies in the United States⁵ reporting that "although about 25,000 rodents are examined annually for rabies, only 4 or 5 are found to have the disease" and that "a case of human rabies has never been traced to a rodent despite the fact that at least 24,000 persons are bitten annually".⁶ The WHO Expert Committee on Rabies^{7, 8} re-

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TABLE I. Species of Rodents and Lagomorphs Examined for Rabies, 1969-1976

Animal	1969	1970	1971	1972	1973	1974	1975	1976	8-Year Total
Squirrel	75	95	76	82	133	116	103	111	791
Chipmunk	5	8	4	9	7	10	8	8	59
Gophers & Moles	3	6	9	7	7	9	3	8	52
Nutria		1			1			1	3
Gerbil	3	4	11	10	12	10	9	9	68
Hamster	31	37	34	18	28	34	37	35	254
Guinea pig	2	1	7	3	10	4	9	6	42
Rabbit	35	30	44	36	40	33	36	39	293
Rat	33	51	45	73	96	66	86	73	523
Mouse	29	33	38	32	31	49	65	35	312
Muskrat		6	1	2	2	3	6	5	25
Chinchilla		1					1		2
Ground hog	1	2	1	2	3	1	3	9	22
Beaver					1			1	2
Armadillo					1			1	2
Unidentified Rodent		3	1	1					5
TOTAL	217	278	271	275	372	335	366	341	2455

ports that the search for rabies virus in surveys of small, wild animals in enzootic rabies areas has revealed no incidence of rabies virus infection . . . confirming the reports that these "species do not serve as important reservoirs of the disease in nature."

As Dr. Winkler states,⁵ it would be unwise to categorically recommend that no more rodents or rabbits be tested for rabies; that what is needed is a more judicious evaluation of the circumstances surrounding each exposure (bite). The CDC recommends that only rodents which exhibit grossly aberrant behavior (aggressiveness or paralysis) before biting be examined for rabies.³ Caged pets with almost no likelihood of exposure, wild rodents provoked into biting, and rats and mice from urban developments seldom, if ever, need to be examined since the risk of infection is so remote.

REFERENCES

1. Sikes, R. K.: *Physician's Report*, Epidemiology Section, Georgia Department of Health Resources, Atlanta, Ga. September, 1975.
2. Center for Disease Control. *Squirrels not a Rabies Problem in Florida*, Veterinary Public Health Notes, U.S. Department of Health, Education and Welfare, Public Health Service, Center for Disease Control, Atlanta, Ga. October, 1975.
3. Center for Disease Control. *Florida Changes Policy on Examination of Rodents for Rabies*, Veterinary Public Health Notes, U.S. Department of Health, Education and Welfare, Public Health Service, Center for Disease Control, Atlanta, Ga. January, 1975.
4. Center for Disease Control. *Oklahoma Changes Rabies Examination Policy*, Veterinary Public Health Notes, U.S. Department of Health, Education and Welfare, Public Health Service, Center for Disease Control, Atlanta, Ga.
5. Winkler, W. G.: *Rodent Rabies in the United States*. Journal of Infectious Diseases. 126(5):565-567, 1972.
6. Center for Disease Control. *Rodent Rabies*, Veterinary Public Health Notes, U.S. Department of Health, Education and Welfare, Public Health Service, Center for Disease Control, Atlanta, Ga. July, 1976.
7. *WHO Expert Committee on Rabies*, 5th Report. WHO Technical Report Service, No. 321. Geneva, 1966.
8. *WHO Expert Committee on Rabies*, 6th Report. WHO Technical Report Service, No. 523. Geneva, 1973.



EDITORIAL

Glucose Metabolism

Alfred Kahn, Jr., M.D.

Probably no metabolic entity is more widely misunderstood by the lay public and physicians than hypoglycemia. Practicing physicians frequently hear, "I felt weak and I just had to eat to get my strength back". Fred D. Hofeldt, writing in *Metabolism* (Volume 24, page 1193, October, 1975), has reviewed "Reacting Hypoglycemia". Actually, the definition is somewhat open to misunderstanding; it used to be a blood glucose less than 40 or 50 mg.%. He says that "recent observations stress the interpretation of the low blood glucose in relationship to the patient's symptoms."

There are exogenous causes of low blood sugar. Some are physician-induced as by insulin or other drugs; occasionally, the state is induced willfully by patients. Some drugs given for other purposes lower the blood sugar as salicylates, alcohol, etc.

Hofeldt's next division is "Spontaneous Hypoglycemia", which is divided into two by classification: fasting and post-prandial. The fasting states include pancreatic, hepatic, pituitary, nervous, muscle, tumors, and unclassified. The post-prandial include alimentary diabetes mellitus, hormonal deficient gluconeogenesis and ideopathis. There is even a pseudo-hypoglycemia as seen in

chronic leukemia with very high white cell counts.

Hofeldt has an interesting discussion of the history of the syndrome of reactive hypoglycemia and concludes that its widespread publicity in the lay and medical press have led to over-diagnosis of the condition. The author diagnoses this disorder by using a five-hour glucose tolerance test and having a simultaneous diary of the patient's symptoms. The symptoms and the low point of the hypoglycemic reaction should coincide. Verification of true hypoglycemia can be obtained by measuring the counter regulatory hormones as glucagon, epinephrine, growth hormones, and cortisol. Other hormones that produce hypoglycemia can also be measured as insulin, insulin-like substances, etc.

Therapy for hypoglycemia which Hofeldt recommends include a 100 gram per day restriction on carbohydrates, plus six feedings. Occasionally, he reports, this does not work. If the hypoglycemia is of a secondary type, the underlying cause should be treated.

Another article of more than passing interest concerning carbohydrate metabolism has been published by Spergel, Kahn, and Goldner in *Metabolism*. It is entitled, "Emergence of Overt Diabetes in Offspring of Rats With Induced Latent Diabetes." This is a most unusual, fascinating study in which the authors conclude, "A single subdiabetogenic dose of alloxan administered to the weanling rat induces a persistent state of latent diabetes which progresses to fasting hyperglycemia by the seventh generation. Initial descendants of alloxin-treated animals have hyperinsulinism which progresses to insulinopenia in later generations." The authors have produced a pattern of chemical-induced diabetes that is clearly transmissible—in a strain of animals not heretofore diabetic. Spergel et al acknowledge that other researchers have also produced transmissible diabetes by surgical and chemical means. The current paper demonstrates that the diabetes may worsen in each successive generation. The authors have not demonstrated vascular lesions in these animals, but in many respects, these diabetic rats resemble human diabetes.

Of interest, but perhaps distant with regard to clinical use, is an article pertaining to the bridge between contiguous cells—with specific reference to human islets of Langerhans authored by Orci, Malaisse-Lagae, Amherdt, Ravazzola, Weisswange, Dobbs, Perrelet, and Unger (*Journal of*

Clinical Endocrinology and Metabolism, Volume 41, Page 841, November, 1975). They point out that tissues are made up of like cells, having similar functions. The junctions between adjacent cells may be pathways of communication. Two types of junctions are known: tight junctions demonstrating fusion between cells and gap junctions in which cells are connected by subunits. Orci, et al, using a freeze technique, has avoided autolysis; using this method, they demonstrated both types of junctions in the human pancreas. They feel that the tight junctions form a reticulum in the pancreas; they offer a means of exposure of certain structural aspects of the cells. The gap junctions are thought to be the bridge through which electrical and chemical messages pass from cell to cell without entering the extracellular fluid. Orci et al feel that this gap junction may be the means whereby cells determine the functional need for specific activity and then release the correct amount. It is possible that some disease processes represent disruption of these junctions.

Carbohydrate metabolism is intimately tied up with cell function throughout the body—and thus, has universal function and interest.



RESOLUTIONS



The following resolution was adopted by the Greene-Clay County Medical Society at its September 8, 1976 meeting:

WHEREAS, Earle D. McKelvey, M.D., has contributed many years of invaluable and active service—both to this community and to this Medical Society, and

WHEREAS, Dr. McKelvey has served his patients beyond the usual call of duty, both through his youth and maturity, and

WHEREAS, Dr. McKelvey has reached the age of voluntary retirement, and

WHEREAS, Dr. McKelvey has been an honored and respected member, both of this Society and of the State Medical Society,

BE IT THEREFORE RESOLVED that the Society extends its best wishes to Dr. McKelvey.



THE MONTH IN WASHINGTON

September is now the appointed month for the Congress to make final disposition of a great deal of unfinished health legislation. The August doldrums saw little visible Congressional action on health business. But behind closed doors much work was performed by members and staff in committee and conference meetings. However, the final shape and form of legislation such as manpower, health maintenance organizations, clinical laboratories, Indian health, variable incentive pay, and emergency medical services will not be known until the last hectic days of the 94th Congress as it rushes to adjourn and go home for the autumnal election campaigns.

The Maximum Allowable Cost (MAC) drug program went into effect towards the end of August with little visible activity. First signs of life will probably appear in the late fall when MAC's advisory committee will meet to consider the initial prescription drugs for the program.

Court decisions in the various counter suits, including that of the American Medical Association, are not expected anywhere in the near future.

The three-year-old brainchild of former Health, Education and Welfare Secretary Caspar Weinberger, MAC sets price ceilings on certain widely used drugs in an effort to discourage prescription of brand-name products. Physicians would have to stipulate that brand-name drugs for Medicare-Medicaid beneficiaries are medically necessary on the prescription in order to prevent the pharmacist from filling the order with the lower cost generic drug. In states with anti-substitution laws, patients would have to make up the difference in price if a brand-name is ordered.

MAC had been scheduled to go into effect four months ago, but retail druggists joined drug manufacturers and the AMA in protest, causing the four-months postponement.

In a letter to HEW Secretary David Mathews, the Pharmaceutical Manufacturer's Association said the original postponement was to resolve "confusion and opposition" surrounding MAC. "It is our observation that such hopes have not been realized, and in fact, the situation is even

more chaotic today," said PMA President C. Joseph Stetler.

The AMA and PMA have a consolidated suit against MAC pending in Chicago District Court. Other litigation has been launched by the National Association of Retail Druggists (NARD), the Private Medical Care Foundation, Inc., and Congress of County Medical Societies. Citing these, along with a petition filed with HEW on July 27 by the American Pharmaceutical Association (APHA), and the "continuing concern," and "growing dissatisfaction" of many individuals and organizations, Stetler said, "there is every reason to further delay . . . the MAC program."

The MAC proposal has many controversial aspects, not the least of which is the fact that it was an administrative decision without any legislative backing in the language of the Medicare and Medicaid laws. Thus, one of the criticisms is that it represents "government by regulation" and violates the Medicare law's prohibition against interference in the practice of Medicare.

Weinberger claimed MAC would save the government \$60 million a year but another former HEW Secretary, Robert Finch, disputed the claim. Finch, now a private citizen in California, said the bureaucratic cost of running the program would offset any possible savings. In a letter to the *Wall Street Journal* last year, Finch also argued that bioequivalency cannot be demonstrated at present. The MAC regulations pose "the key question of whether the patient receives the exact prescription the doctor ordered," he wrote.

Physicians for the most part will be affected with Medicaid patients, since there is no substantial outpatient benefit for Medicare drugs.

In addition to the control program, HEW will send all physicians a list of most frequently prescribed drugs along with the prices community pharmacies pay for them.

No federal sanctions are provided for physicians who decide to write out the "medically necessary" prescription message.

Before a Maximum Allowable Cost can be established for drugs, the Food and Drug Administration must first indicate that there are no bioequivalence problems among its several brands.

The HEW Pharmaceutical Reimbursement Board would then propose a MAC at a level equal to the lowest cost at which the drug is generally available to providers. Before the MAC can be established officially it must be reviewed by a non-governmental advisory committee and published in the *Federal Register* for comment.

The regulations establish both the Pharmaceutical Reimbursement Board and the 5-member outside advisory group.

HEW said about one-fourth of commonly prescribed drugs are available from multiple sources. However, the number for which bioequivalence problems can be ruled out is smaller.

The reimbursement that a pharmacist receives for drugs he provides Medicare and Medicaid patients will be based on an estimate of his cost of buying the drug plus a dispensing fee, or on his usual charge to the general public, whichever is the smaller. Program agencies such as the state Medicaid program would make the estimates according to price information supplied on a regular basis by HEW.

Druggists protested a HEW wholesale price list designed to guide state agencies which the druggists said contained "out-of-date" low prices.

John Ball, M.D., Assistant to the Director of FDA's Office of Quality Standards, recently said it may be as long as six months before the first small group of drugs has gone through the process for declaring them ready for MAC.

* * * *

The Republican Party has gone on record against compulsory National Health Insurance. The platform plank on health adopted by the delegates at the convention in Kansas City was in sharp contrast to the Democratic plank endorsing a comprehensive national plan financed by regular and Social Security taxes.

The GOP statement on health supported extension of catastrophic protection "to all who cannot obtain it." The private health insurance system should be utilized to "assure adequate protection for those who do not have it," the platform said. "Such an approach will eliminate the red tape and high bureaucratic costs inevitable in a comprehensive national program."

The platform on health did not condemn outright any national health insurance program as a group of conservatives led by Sen. Jesse Helms (R-N.C.) had urged. The flat opposition to a "compulsory" NHI program, however, provided

a sufficiently broad umbrella to mount an attack on many NHI proposals and specifically on the Kennedy-Labor bill. Some delegates interpreted the plank as opposition to any "comprehensive" national plan.

President Ford this year did not renew his previous endorsement of the Nixon Administration's NHI plan calling for employers to provide employees with comprehensive private health insurance, federalizing Medicaid, and subsidizing a catastrophic benefit. Instead, Ford asked Congress for a catastrophic benefit for Medicaid beneficiaries. He said the so-called mandated plan would be too expensive at present.

On abortion, the Republicans supported "the efforts of those who seek enactment of a constitutional amendment to restore protection of the right of life for unborn children." The Platform conceded that the issue "is one of the most difficult and controversial of our time . . . undoubtedly a moral and personal issue" involving "complex questions relating to medical science and criminal justice."

The Supreme Court's ruling on abortion permitting it until the last stages of pregnancy was "an intrusion into the family structure through its denial of the parents' obligation and right to guide their minor children," said the Platform.

* * * *

The House has passed the so-called toxic substances act which gives the Environmental Protection Agency new powers to prevent hazardous chemicals from being marketed. A provision was added on the House floor to ban within two years the manufacture of PolyChlorinated Biphenyls (PCBs). The chemical has been found in fish in the Great Lakes and the Hudson River and traces discovered in humans. PCBs are used in electrical equipment and enter the food chain through waste dispersal in waterways.

* * * *

The HEW Department has awarded contracts to establish five centers for health planning in Madison, Wisconsin; Columbia, Missouri; Denver; San Francisco; and Boise, Idaho. The contracts, totaling \$3.2 million will provide training and consultation to health planners in 24 states, Guam, American Samoa, and the Trust Territories of the Pacific. HEW established five other centers for health planning earlier this year in Boston; Syracuse, New York; Fort Washington, Pennsylvania; Atlanta; and Houston.

* * * *

The House Ways and Means Subcommittee on health has postponed until mid-September hearings on issues involved in increasing physicians' fees and possible revisions in the present reasonable charge reimbursement system used in the Medicare program.

The Subcommittee will hear testimony on:

Factors in the present system which influence physicians to accept assignment or to direct bill; advantages and disadvantages to requiring physicians to accept assignment in any case; factors contributing to geographic variations in physician's reasonable charges, including differences in urban and rural primary care physicians and specialists, and the effect of such fee differences on the selection of certain specialists by physicians; feasibility and desirability of reimbursing physicians on a fee schedule basis and the factors which would be used to adjust the schedules to reflect the variation in physician's cost of practice; the role of relative value scales in determining physician fees; results of experimental reimbursement programs; and comments on legislation al-

ready pending which would amend Medicare reimbursement of physicians.

The Subcommittee also will examine the issues involved in the payment of physicians in teaching hospitals under Medicare. However, Congress will not be able to act on such matters this year.

President Ford has named Robert Nelson Smith, M.D., Toledo, Ohio, anesthesiologist, to be Assistant Secretary of Defense for Health Affairs. Dr. Smith, who served as President of the Ohio State Medical Association in 1969-1970, succeeds James Cowan, M. D., who resigned.

Dr. Smith graduated from West Point in 1943 and served in the Air Force from 1943 to 1948. He received a Master of Science degree from Massachusetts Institute of Technology in 1945 and his medical degree from the University of Nebraska College of Medicine in 1952.

The 56-year-old physician is a member is a member of the AMA, the Ohio State Medical Association, and the American Society for Anesthesiologists.



PERSONAL AND NEWS ITEMS

E. J. EASLEY RECEIVES AWARD

Dr. Edgar J. Easley, Deputy Director of the State Health Department, was presented with a twenty-five year Distinguished Service Award at the 69th Annual Meeting of the Arkansas Lung Association. Dr. Easley has served the Arkansas Tuberculosis Association, which is now the Arkansas Lung Association, as liaison between the official and volunteer health agencies.

MEDICAL ASSISTANTS SEMINAR

The Arkansas State Medical Assistants Society held its third annual educational seminar in Little Rock. Program participants included Dr. Alvah Nelson, Dr. G. Thomas Jansen, Dr. Doyne Williams, Dr. Millard Black, and Dr. Ben Saltzman.

DR. MCKINNEY JOINS CLINIC

Dr. Daniel C. McKinney, a Pediatrician with special training in adolescent medicine, has

joined the Children's Clinic at Pine Bluff. He received his medical degree from the University of Arkansas Medical School at Little Rock, and did his pediatric internship at Emory University in Atlanta. He has done two years of pediatric residency at the University of Arkansas Medical Center in Little Rock, and then a fellowship last year in adolescent medicine at Children's Hospital in Washington.

UROLOGIST TO SEARCY

Dr. Kenneth Meacham, Urologist, has opened an office at 910 East Race Avenue in Searcy. He is a native of Arkansas and obtained all of his medical education and training at the University of Arkansas College of Medicine. He served two years in the Navy prior to locating in Searcy.

DR. CHALHUB APPOINTED

Dr. Elias G. Chalhub, a pediatrician whose research interests are in encephalitis and peripheral

nerve disease, has been appointed Associate Professor of Pediatrics at the University of Arkansas College of Medicine. He will head a program to develop a comprehensive approach to the management of handicapped children.

DR. WATERMANN NAMED MEDICAL DIRECTOR

Dr. Eugene Watermann, a native of Hot Springs who has practiced psychiatry in Maryland and Washington, D. C., for the past 15 years, has returned to his home town as new medical director and director of training at the Ouachita Regional Counseling and Mental Health Center. This center serves Clark, Garland, Hot Springs, Montgomery, and Pike Counties.

DR. PRUETT DIRECTOR OF THE EMERGENCY ROOM MEDICINE

Dr. George Pruett, a Monticello native, is the director of Emergency Medicine at Jefferson Hospital in Pine Bluff. He is assisted by Dr. Keith Stout. Dr. Pruett is a graduate of the University of Arkansas School of Medicine. He spent the last three years in San Antonio, supervising the emergency services provided by three hospitals. In Jefferson Hospital, about 18,885 persons were treated in the emergency room during the last year. Dr. Pruett plans for a staff of three or four doctors who will rotate duty in the emergency room and work full-time for the hospital.

STOP SMOKING SESSIONS HELD

Smokers who wanted to kick the habit had their chance in a special Five-day Plan to stop smoking which was conducted in Malvern by the Arkansas Lung Association and the Seventh-Day Adventist Church. Dr. C. R. Ellis spoke on "Smoking and Its Relation to the Heart and Lungs" as a part of the program for the course.

DR. SUEN FEATURED

Dr. James Yee Suen, of Little Rock, Chairman of the Department of Otolaryngology at the University of Arkansas College of Medicine, and the project director of the Head and Neck Cancer Control Program in Arkansas, was featured as the University of Arkansas distinguished faculty member at the Arkansas-Utah State football game in September.

DR. TUCKER JOINS MEDICAL STAFF AT BOONEVILLE MEDICAL CLINIC

Dr. Theodore Kermit Tucker has recently joined the Booneville Medical Clinic staff. Dr. Tucker is a general practitioner who came to Booneville from Prairie Grove where he had a private practice for 25 years. He is a native of

Traskwood but spent much of his early life in El Dorado. He is a graduate of the University of Arkansas School of Medicine and a member of the Theta Kappa Psi and has been named to "Who's Who in American Colleges and Universities."

DR. DICKINSON TO SET UP CLINIC IN IRAN

Dr. Rodger Dickinson, one of the founders of the Dickinson Clinic in DeQueen, has accepted the responsibility of setting up a clinic for the Sar Cheshaneh Mining Company of Iran. The clinic will be located 100 miles west of Kerman on the site of a major copper strike. Approximately 4000 people will be employed in the mining operation, and the firm is building a complete town to house families of the workers. Dr. Dickinson expects to be in Iran from 18 months to two years. The closest medical facility to the new town which they will help to establish is some 600 miles distant, in Teheran, Iran.

Dr. Dickinson; his late father, Dr. R. C. Dickinson; and his brother, Dr. Richard B. Dickinson established the Dickinson Hospital, Clinic and Nursing Home. Dr. Wallace Dickinson, who was also on the Dickinson Clinic staff, has joined the DeQueen Clinic.

INTERNIST OPENS OFFICE IN PINE BLUFF

Dr. William F. Harper has opened his office in Pine Bluff. Dr. Harper is a native of Pine Bluff. He was educated in schools in Texas and received his Doctor of Medicine Degree from the University of Texas Medical Branch at Galveston in 1970. He joined the Air Force in 1969 and spent three years in specialty work in internal medicine at Wilfor Hall United States Air Force Medical Center at Lackland, Texas. He was stationed at the Air Force Hospital at Clark Air Base in the Philippines where he served as Chief of Medicine and at MacDill Air Force Base at Tampa where he was Chief of Internal Medicine.

DR. BLACK ACCEPTS NEW POST

Dr. John "Pat" Black, of Mountain Home, has accepted the position of emergency room physician at the Baxter General Hospital in Mountain Home. Dr. Black was formerly in private practice with the Mountain Home Medical Group. He is a graduate of the University of Arkansas School of Medicine and has been in private practice since 1974. Dr. Black will have a contract with the local hospital to provide 24-hour emergency room service, and he will be responsible for having a physician in attendance at all times.

TENNIS IS BIG LOVE IN DR. SAFRANEK'S FAMILY

A Fort Smith physician's family has its own potential Davis Cup Team; six of the ten children of Dr. and Mrs. E. J. Safranek are tennis players. Rosemary, now a freshman at the University of Chicago, took to the courts first. Since then she has enlisted Barbara, Rita, Joe, Ann, Bobby, and Jim.

Jim, an eighth grader, doesn't really care much for the game and their mother doesn't play either. Four of the six players competed in the Fort Smith City Tennis Tournament this year. Dr. Safranek is an Anesthesiologist.

DR. JAMES W. LONG ACCEPTED INTO CLINICAL ORTHOPAEDIC SOCIETY

Dr. James W. Long, Orthopaedic Surgeon associated with the Holt-Krock Clinic of Fort Smith, was accepted into the Clinical Orthopaedic Society at their 64th Annual Meeting held in Denver, Colorado. Dr. Long is the youngest orthopaedic surgeon to ever be accepted into this exclusive group, and there are only six other orthopaedic surgeons in the State of Arkansas who belong. This is a select group of Board Certified Orthopaedic Physicians. The other Arkansas Orthopaedists who belong are: Dr. S. B. Thompson of Little Rock, Dr. Walter G. Selakovich of Little Rock, Dr. Carl L. Nelson, Jr., of Little Rock, Dr. Richard M. Logue of Little Rock, Dr. John M. Hundley of Little Rock, and Dr. William E. Knight of Fort Smith.

DR. KNIGHT ATTENDS ORTHOPAEDIC MEETING IN SCOTLAND AND ENGLAND

Dr. William E. Knight, an Orthopaedic Surgeon with the Holt-Krock Clinic in Fort Smith, recently returned from the 6th Combined Meeting of the Orthopaedic Association of the English Speaking World. The first session of 5 days was held in Edinburgh, Scotland, and the second session consisting of 6 days in London, England. Other countries attending were Canada, England, South Africa, New Zealand, Australia, and other invited members from smaller countries too numerous to mention.

DR. PREWITT RECEIVES FELLOWSHIP

Dr. Taylor Prewitt, Fort Smith, has been granted fellowship in the American College of Cardiology.

DR. SLOAN WILSON ELECTED INTO THE RETINA SOCIETY

Dr. R. Sloan Wilson of Little Rock was recently

elected into the Retina Society. Membership is limited to 125 ophthalmologists in the western hemisphere, and is based on scientific contributions related to the retina. Dr. Wilson, the Society's first Arkansan, is the senior member of the Retinal Group, LTD. He is an Associate Professor and Director of the Retina Services at the College of Medicine and the Veteran's Administration Hospital. His practice is limited to diseases and surgery of the retina and vitreous.

NEW PHYSICIANS TO STAFF OF ST. JOSEPH'S MERCY MEDICAL CENTER

Dr. Milton O. Medeiros, Neurophysiologist, Dr. Gopakumar Maruther, Endocrinologist, Dr. William F. Clardy and Dr. Eric A. Frazer, Pediatricians, and Dr. Eugene Waterman, Psychiatrist, have been added to the staff at St. Joseph's Mercy Medical Center in Hot Springs. Dr. Clardy and Dr. Waterman are natives of Hot Springs. Dr. Clardy is the son of Dr. E. K. Clardy of Hot Springs.

DR. WARREN AND DR. GRAY ATTEND MEETING IN BOSTON

Dr. George W. Warren of Smackover and Dr. Dwight W. Gray of Marianna attended the 28th Annual Scientific Assembly of the American Academy of Family Physicians held in Boston in September. More than 3,000 family doctors participated in the once-a-year continuing education conclave.

DR. SALTZMAN SERVES ROTARY INTERNATIONALLY

Dr. Ben N. Saltzman, Professor at the University of Arkansas College of Medicine, has been appointed chairman of the consultative group for the United States, Canada, and Bermuda regions of Rotary International.

DR. MCKENZIE DISCUSSES SCOLIOSIS

Dr. Charles N. McKenzie, Little Rock Orthopaedic Surgeon, addressed fifteen Searcy Junior Auxiliary members and several senior nursing students from Harding College on a scoliosis screening at the White County Hospital.

THREE PHYSICIANS NAMED TO STATE BOARD OF HEALTH BY GOVERNOR

Governor David Pryor has appointed three physicians to four-year terms on the State Board of Health—Dr. Ben Saltzman of Mountain Home, Dr. Warren Murry of Fayetteville, and Dr. John Burge of Lake Village.

THINGS TO COME

PHYSICIANS INVITED TO MEET WITH NURSES

All practicing physicians are invited to participate in a panel demonstration between (1) a practicing pediatrician and his nurse practitioner; (2) an Obstetrician-Gynecologist and his nurse practitioner; and (3) an institutional Family Practice specialist and his nurse practitioner. The panel will be presented at a Dutch-treat dinner immediately preceding the annual meeting of the Arkansas State Nurses Association. Dutch-treat cocktails at 6:30 and dinner 7:30 p.m. in the Camelot Inn, Little Rock, on Wednesday, November 17, 1976. Physicians may call the Arkansas State Nurses Association office, 117 South Cedar, Little Rock, telephone 664-5853 for reservations.

SOUTHWEST ALLERGY FORUM

APRIL 30 — MAY 4, 1977

The Southwest Allergy Forum will hold its meeting at the Lakeway Inn near Austin, Texas, on April 30 through May 4, 1977. Those interested in further information about the meeting should write to Theo S. Painter, Jr., M.D., Suite 107, Medical Park Tower, Austin, Texas 78705.

MAMMOGRAPHY TRAINING FOR THE EARLY DIAGNOSIS OF BREAST CANCER

SPONSORS:

The University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute, Houston, Texas; National Cancer Institute; American College of Radiology.

LOCATION:

Mammography Conference Room (Room 257, near second floor X-Ray waiting room), Department of Diagnostic Radiology, M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, Texas.

FEE:

None.

DESIGNED FOR:

Radiologists, residents in radiology, radiologic technologist. Other physicians and interested medical personnel may monitor the course on a space available basis.

ENROLLMENT:

Maximum of four physicians and four technologists per course. When possible,

radiologists are encouraged to bring their mammography technologists for the same instruction period.

DURATION:

Five continuous days, Monday through Friday. Eight hours of instruction per day, 40 total course hours.

DATES:

The course will be offered the second or third week of each month, variations determined by conflicting national or local conventions, holidays, etc. Attempt will be made to schedule course dates several months in advance. Present course schedule includes weeks beginning on the following Mondays.

TIME:

Course begins at 8:00 a.m. on Monday morning of the assigned course date.

CREDIT:

Category I, AMA Physician's Recognition Award, American College of Radiology. Approved for ECE points by ASRT.

CURRICULUM:

Separate curriculum for radiologists and radiologic technologist. Curriculum and schedule may be individually modified to accommodate enrollee's previous experience and future needs.

CONDUCTED BY:

David D. Paulus, M.D., Mammography Training Director
Susan K. Sprinkle, R.T., Mammography Technical Coordinator

TEACHING METHODS:

Audiovisual materials, lectures, live clinic demonstrations, participation in routine patient examinations, introductory teaching sets, review of extensive proven case files in film mammography, xeroradiography and thermography, and daily round table discussions of problem cases.

APPLICATIONS:

Requests for a specific instruction period will be accepted on a first come, first served basis and should include an alternate date in case the first course preference is filled. Applications are requested to include a brief description of previous experience in length of time and number of mammograms performed and interpreted (estimate number per week or month over a period of how long), and what the primary interest will be, i.e., film mammography, xeroradiography and/or thermography. This will enable us to better prepare

individual schedules. Prompt notification of cancellation will be greatly appreciated.

ACCOMMODATIONS:

Numerous hotels and motels are located within a short walking distance or in the vicinity of the Medical Center, many providing free transportation to and from the various hospitals in the Center. We will be happy to assist in making desired accommodations. Visitors will be responsible for their own expenses. Shopping and tour information will be avail-

able for accompanying families.

CONTACT:

For further information or assistance please send inquiries to:

Dawn Nevling Shull, Project Coordinator
Department of Diagnostic Radiology
The University of Texas System Cancer Center
M. D. Anderson Hospital and Tumor Institute
6723 Bertner Drive
Houston, Texas 77030

TELEPHONE: Area code 713-792-2712



**NEW
MEMBERS**

DR. ROBERT D. LOWERY

The Lawrence County Medical Society has accepted into membership Dr. Robert D. Lowery who is associated in General Practice with the Lawrence County Family Clinic at 1210 Highway 25 West in Walnut Ridge. Dr. Lowery was born in St. Louis, Missouri. He attended the University of Arkansas, receiving his M.D. Degree in 1975. He interned and fulfilled his residency requirement at the University of Arkansas.

DR. MICHAEL D. NEFF

Dr. Michael D. Neff has established his office in the Medical Arts Building on Highway 25 West in Walnut Ridge and is another new member of the Lawrence County Medical Society. He is a graduate of Baylor University in Texas and interned at John Peter Smith and also completed his residency there. He was with the United States Public Health Services from 1969 to 1971, and was in private practice in Fort Worth, Texas, from 1971 to 1976. Dr. Neff is a general practitioner.

**DR. CLARDY EXTENDED RESIDENCY
MEMBERSHIP**

Dr. William F. Clardy has been extended a courtesy membership in the Pulaski County Medi-

cal Society. Dr. Clardy is a third year resident at the University of Arkansas Medical Center and he is specializing in Pediatrics.

DR. WILLIAM LEE MASON

Dr. William Lee Mason has been accepted into membership of the Pulaski County Medical Society. He is a native of Arkansas and received his M.D. Degree from the University of Arkansas in 1968. He interned at the University Hospital in Little Rock. Dr. Mason completed his residency at the University of Arkansas Medical Center in Internal Medicine with a subspecialty of Pulmonary diseases from 1968 to 1975. Dr. Mason is American Board of Internal Medicine certified, and is a member of the American Thoracic Society, an Associate member of the Arkansas Thoracic Society, and a member of the American College of Medicine. He is an instructor of Medicine at the University of Arkansas and a chest consultant to the State Department of Health, and the Veterans Administration Hospital in Little Rock. His specialty is pulmonary and infectious diseases and he is in private practice at 500 South University, Suite 817, Little Rock.

DR. CHARLES H. MILLER

Dr. Charles H. Miller has been accepted into membership of the Washington County Medical Society. He was born in Lebanon, Missouri. He attended the University of Arkansas School of Medicine where he obtained his Bachelor of Science and Medical Degrees. His internship and residency were completed at St. John's Hospital in Tulsa, Oklahoma, in General Surgery from 1968 to 1972 and Thoracic and Cardiovascular Surgery from 1972 to 1973. He served in the U. S. Air Force from 1973 to 1975 and then returned to St. John's for completion of his training.

Dr. Miller was the Assistant Professor of the Department of Surgery at the University of Arkansas College of Medicine from 1975 to 1976. He is a Thoracic and Cardiovascular Surgeon and is board certified in General Surgery. He is a

candidate of the American College of Surgeons and an affiliate of the American College of Cardiology.

Dr. Miller's office is located at 1749 North College Avenue in Fayetteville.



ANSWER—Electrocardiogram of the Month

1. Yes, the pacemaker is a ventricular inhibited demand model.

A) The pacemaker free running interval (the interval between two paced beats is .84 second), rate 71 beats/minute.

B) The pacemaker escape interval (the interval between the patient's beat and a paced beat) is .85 second. Note the pacemaker does not always sense the very first part of the patient's QRS that is seen on the ECG because the electrode is usually in the apex of the right ventricle and a QRS may have delayed conduction to the right ventricle (i.e. RBBB or left ventricular PVC). There is also a small built-in delay required in the pacemaker circuits. The total of this delay should be less than .04 second so the time from the beginning of the patient's QRS to the next pacemaker beat should be no more than .04 second longer than the escape interval except in a few especially designed units.

C) The pacemaker is sensing appropriately as all of the patient's own beats reset the pacemaker. Occasionally a pacemaker spike will occur in the first part of a normal QRS, this is acceptable as it is secondary to the same factors described in 1B. (There are no examples of this on the ECG).

2. The Apex of the Right Ventricle.

Note that all the forces of the QRS are directed superiorly to the left and posterior. The apex of the right ventricle is an anterior and inferior structure and the major muscle (the left ventricle) is to the left of the pacing lead. So all the forces from the pacer tip radiate posteriorly superiorly and left if the lead is in the apex of the right ventricle.

Castellana, A., Jr., et. al., "Electrocardiogram in Patients with Pacemakers", *Progress in Cardiovascular Disease* 13:190-209, 1970.

3. The patient has had a recent anterior wall myocardial infarction and has periods of sinus arrest which caused a Stokes Adams attack. Only rare P waves are noted on this tracing. They precede the patient's own QRS complexes.

The P waves are conducted with variable degrees of AV block depending upon proximity to prior QRS complex suggesting same disease is also present in the AV node. QS complexes can be seen in leads I, AVL, V₂ and V₃ which reflect the patient's recent antero-lateral myocardial infarction.



OBITUARY

RUPERT MITCHUM BLAKELY

Dr. Rupert Mitchum Blakely, a Little Rock retired physician, died September 25 at the age of ninety. Dr. Blakely was born in Lamar on November 13, 1885. He was honored by the Arkansas Medical Society in 1975 for having practiced medicine for more than 50 years.

Dr. Blakely was the son of the late Dr. Thomas B. and Mamie Bradley Blakely. He is survived by a son, Rupert M. Blakely, Jr., of Little Rock; a daughter, Mrs. John R. Forgy of Little Rock; one brother, three sisters, eight grandchildren, and two great-grandchildren.

Memorials may be made to Young Life at 815 Bishop Street, Little Rock, Arkansas 72202.

AURELIUS R. DeJANIS, M.D.

Dr. A. R. DeJanis of 115 West Broadway, North Little Rock, died September 4, 1976. He was a general practitioner and surgeon, and had practiced medicine for 50 years. He was a member of the 50-year Club of American Medicine. Dr. DeJanis was a member of the Pulaski County Medical Society, Arkansas Medical Society, and the American Medical Association. He was a member of the American Academy of Family Physicians.

Dr. DeJanis was born in Naples, Italy, November 9, 1895. He attended Fordham University and received his M.D. degree from the College of Physicians and Surgeons in St. Louis, Missouri, in 1922. He interned at Flushing Hospital and Dispensary in Flushing, New York, and received his Arkansas licensure in March, 1929. He was a member of the Fellow American Geriatric Society.

Dr. DeJanis is survived by his wife, Julia Irene

McGaughey DeJanis, and a sister, Mrs. Elvira DeLuca of Bridgeport, Connecticut.

DR. RICHARD C. PETTY

Dr. Richard Clifton Petty, of Star City, died Saturday September 18, 1976. He was born September 5, 1927.

Dr. Petty received his bachelor's degree from Ouachita Baptist University at Arkadelphia in 1949, and his Doctor's degree from the University of Arkansas Medical School at Little Rock in 1953. He served in the Army before and during the Korean War, and completed his internship while serving in the Army at the Army-Navy Hospital in Hot Springs, Arkansas. He started practicing medicine in Star City at the old Gardner Hospital in 1954. Later, he built his own office and began practice there in 1956. Dr. Petty was a Family Physician and a member of the Lincoln County Medical Society, the Arkansas Medical Society, American Medical Association, and the American Academy of Family Physicians.

Dr. Petty was very active in community affairs and held several board positions. He was the president of the Star City School Board and took a very active interest in the betterment of the community school. He was also on the Board of Directors of the Bank of Star City. He served two terms as the Lincoln County coroner in the 1950's and was a member of the Star City Fire Department and the Star City Chamber of Commerce. He was a former board member of the Ouachita Baptist University. Dr. Petty was 32nd

degree Mason and a member of the Scottish Rite, the York Rite Bodies, and a member of the First Baptist Church in Star City.

Dr. Petty is survived by his wife, Mrs. Aileen McBryde Petty; three sons, Clifton F. Petty of Nashville, Douglas B. Petty and Rickey Petty of Star City; a daughter, Mary Kay Petty of Star City; his mother, Mrs. Lillian Petty of Earle; and a brother, William C. Petty of St. Louis, Missouri.



Woman's
Auxiliary

**CLARK COUNTY MEDICAL SOCIETY BESTOWS
SCHOLARSHIP**

Mrs. Wanda Hoyle received the Martha Harding Gann Memorial Fund, Inc., scholarship award which is given by the Arkansas Medical Society Auxiliary. The scholarship was presented by Mrs. Diana Stover, President of the Clark County Medical Society Auxiliary and a member of the Arkansas Medical Society Auxiliary Board. Mrs. Stover was instrumental in helping Mrs. Hoyle apply for the scholarship.



December, 1976

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 73 No. 7

FORT SMITH, ARKANSAS

101st ANNUAL SESSION
ARKANSAS MEDICAL SOCIETY
LITTLE ROCK CONVENTION CENTER, APRIL 24-27, 1977

From Lilly/Dista Research

NALFON[®]
fenoprofen calcium

300-mg.* Pulvules[®]



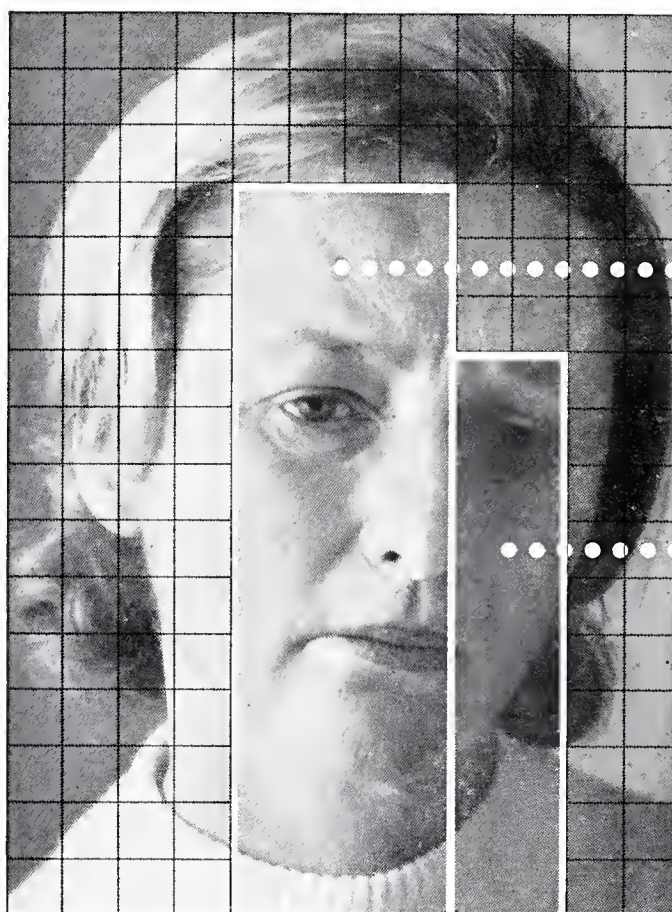
Dista Products Company
Division of Eli Lilly and Company
Indianapolis, Indiana 46206

*Additional information available to the profession
on request.*

*Present as 345.9 mg. of the calcium salt of fenoprofen dihydrate
equivalent to 300 mg. fenoprofen.

LIBRARY
U.C. SAN FRANCISCO
JAN 5 1977

Both often



- Predominant psychoneurotic anxiety

- Associated depressive symptoms

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathol-

ogy; spasticity caused by upper motor neuron disorders; athetosis; stiff-man syndrome; convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency

and/or severity of grand mal seizures may require increased dosage of standard anti-convulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful

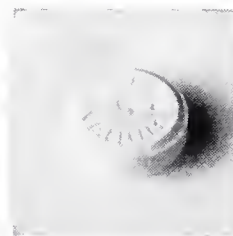
respond to one

According to her major symptoms, she is a psychoneurotic patient with severe anxiety. But according to the description she gives of her feelings, part of the problem may sound like depression. This is because her problem, although primarily one of excessive anxiety, is often accompanied by depressive symptomatology. Valium (diazepam) can provide relief for both—as the excessive anxiety is relieved, the depressive symptoms associated with it are also often relieved.

There are other advantages in using Valium for the management of psychoneurotic anxiety with secondary depressive symptoms: the psychotherapeutic effect of Valium is pronounced and rapid. This means that improvement is usually apparent

in the patient within a few days rather than in a week or two, although it may take longer in some patients. In addition, Valium (diazepam) is generally well tolerated; as with most CNS-acting agents, caution patients against hazardous occupations requiring complete mental alertness.

Also, because the psychoneurotic patient's symptoms are often intensified at bedtime, Valium can offer an additional benefit. An *h.s.* dose added to the *b.i.d.* or *t.i.d.* treatment regimen can relieve the excessive anxiety and associated depressive symptoms and thus encourage a more restful night's sleep.



Valium[®] (diazepam) [Ⓢ]

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in psychoneurotic
anxiety states
with associated
depressive symptoms

surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

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Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice,

skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.



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Metabolism, Function, and Clinical Role of Vitamin D

Howard H. Conaway* and Michael A. Griffey**

In the past few years there have been intensive investigative efforts directed towards elucidating the metabolism and function of vitamin D₃ in numerous laboratories throughout the world. It is now clear that a metabolite of vitamin D₃, 1,25-dihydroxy vitamin D₃, is the principal agent responsible for such well known biological action of vitamin D₃ as increased intestinal calcium absorption, the healing of rachitic lesions, and increased bone mobilization. These findings, together with the results of other recent vitamin D research work, have led to a clearer picture of the homeostatic regulation of calcium and phosphate, and promise a brighter future for the therapeutic control of metabolic bone disease.

Metabolic Transformation of Vitamin D₃

Vitamin D₃ (cholecalciferol) can be produced in the skin by the photochemical conversion of 7-dehydrocholesterol. With adequate exposure to sunlight, this biosynthetic process can result in the production of sufficient quantities of vitamin D₃ for the physiological needs of the human. However, the extent of exposure to sunlight in urban man is sometimes inadequate for a proper supply of the compound, and thus, vitamin D as either vitamin D₂* or vitamin D₃ is supplemented in the diet.

Regardless of whether cholecalciferol is obtained as a dietary constituent or is produced within the body, the compound must undergo metabolic alteration before expressing biological activity (Fig. 1). Vitamin D₃ is first metabolized

in the liver to 25-hydroxycholecalciferol (25-OH-D₃). This reaction takes place in liver microsomal fractions and requires NADPH and molecular oxygen. Although 25-OH-D₃ is not considered to be a major biologically active metabolite of vitamin D₃, the production of this compound is believed to represent an important control point in the metabolism of vitamin D₃ which is feedback regulated by 25-OH-D₃ itself. Therefore, depending upon the utilization of available 25-OH-D₃ from the liver, more or less

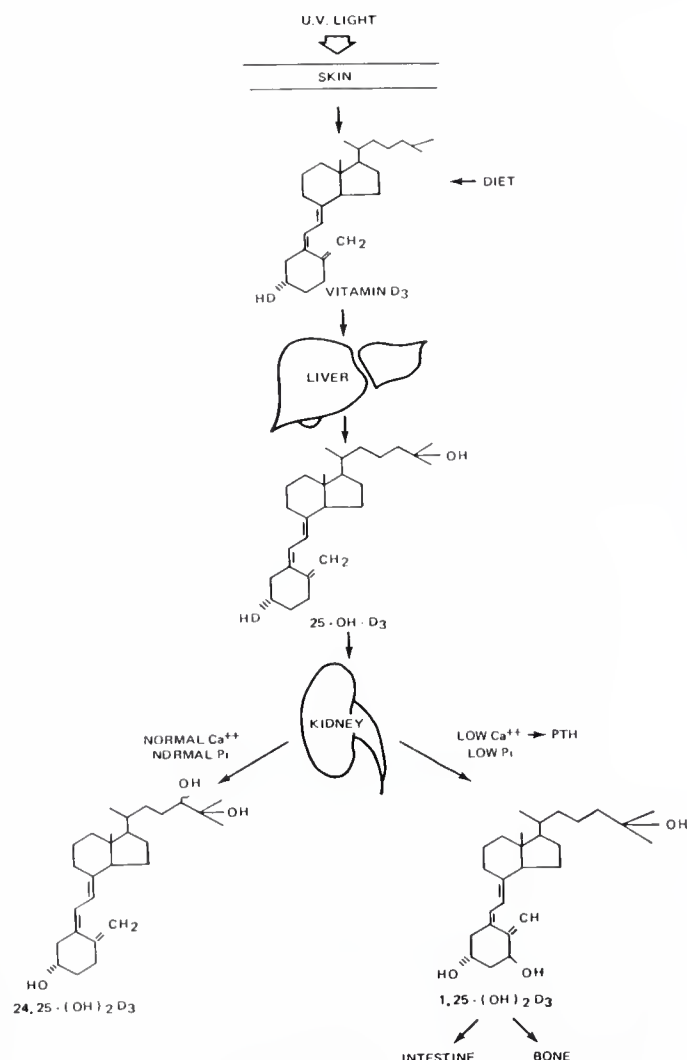


Figure 1.

Schematic representation of vitamin D metabolism.

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*Vitamin D₂ denotes the compound ergocalciferol which is produced by the irradiation of the plant sterol, ergosterol. Vitamin D₂ is clearly active in man and may represent a significant portion of the total body stores of vitamin D. Although vitamin D₂ has not been studied in as great a detail as cholecalciferol, the compound is currently believed to undergo metabolic transformation in a fashion which is very similar to that which is known to occur in the metabolism of vitamin D₃.

vitamin D_3 will be hydroxylated.

The 25-hydroxylated derivative of cholecalciferol (25-OH- D_3) circulates in the serum bound to an α_2 globulin. Under appropriate regulatory conditions, 25-OH- D_3 is metabolized in the kidney to 1,25-dihydroxycholecalciferol [1,25-(OH) $_2D_3$]. This conversion takes place in mitochondrial fractions and is a mixed function oxidase reaction mediated by cytochrome P-450. The 1,25-hydroxylated derivative of vitamin D_3 is capable of eliciting responses at the level of both intestine and bone, and is believed to represent the major biologically active metabolite of vitamin D_3 .

Conversion of 25-OH- D_3 to 1,25(OH) $_2D_3$ is enhanced when either the serum calcium or phosphate concentration is decreased. When normal serum concentrations of calcium and phosphate are present, 25-OH- D_3 is primarily metabolized in the kidney to 24,25-dihydroxycholecalciferol [24,25-(OH) $_2D_3$]. The physiological function of 24,25-(OH) $_2D_3$ is presently unknown, but it has been suggested that this derivative may be converted in the kidney to yet another metabolite, 1,24,25-(OH) $_3D_3$, which may be specific for intestinal transport of calcium.

Regulation of Serum Calcium and Phosphate

It has been recognized for many years that a decrease in the serum ionic calcium level serves as a stimulus for the parathyroid glands to elaborate parathyroid hormone (PTH). Parathormone, in turn, is known to then bring about such well defined responses as increased bone calcium and phosphate mobilization, increased kidney retention of calcium, and decreased kidney retention of phosphate. Recent work on vitamin D metabolism has shown that PTH will also act at the level of the kidney to promote a shift in the conversion of 24,25-(OH) $_2D_3$ to that of 1,25-(OH) $_2D_3$. The 1,25-hydroxylated derivative of vitamin D_3 can increase bone mobilization and increase calcium and phosphate absorption from the gut. Therefore, a decrease in serum ionic calcium is countered by increased calcium mobilization from bone due to both PTH and 1,25-(OH) $_2D_3$, increased intestinal calcium absorption due to 1,25-(OH) $_2D_3$, and increased kidney retention of calcium brought about by PTH. Serum phosphate concentration, on the other hand, remains relatively constant due to the phosphaturic action of PTH.

A decrease in serum phosphate concentration is not a stimulus for PTH secretion, but will promote the renal conversion of 1,25-(OH) $_2D_3$ from 25-OH- D_3 . The 1,25-(OH) $_2D_3$ formed will primarily increase calcium and phosphate absorption from the gut. This is an action which is believed to be dependent upon the presence of PTH, whereas bone mobilization stimulated by 1,25-(OH) $_2D_3$ is thought to be a PTH dependent response. The subsequent elevation of serum ionic calcium due to increased intestinal calcium transport stimulated by 1,25-(OH) $_2D_3$ is believed to depress PTH secretion which, in turn, will cause a decreased kidney retention of calcium, but increased retention of phosphate. Thus, the overall net response will be a rise in serum phosphate with perhaps only a small increase in serum calcium.

Since the production of 1,25-(OH) $_2D_3$ is feedback regulated by both serum calcium and phosphate concentrations, this metabolite of vitamin D_3 is considered to be a hormone, and vitamin D_3 a prohormone. In the sense that parathyroid hormone will stimulate the conversion of 25-OH- D_3 to 1,25-(OH) $_2D_3$ when there is a decrease in serum ionic calcium, parathyroid hormone can be referred to as a trophic hormone for 1,25-(OH) $_2D_3$ production.

Clinical Aspects of Vitamin D

Vitamin D has been used for decades as a therapeutic agent in the treatment of rickets and osteomalacia, and to a major extent these bone diseases are reversible by vitamin D administration. However, some individuals suffering from rickets or osteomalacia, as well as many patients with chronic renal failure and ensuing bone disease, fail to respond to vitamin D properly, despite large dosages of the compound. Elucidation of these clinical enigmas have, to a great extent, been resolved by recent advances in vitamin D metabolism. The finding that the biological actions of vitamin D are carried out by a metabolite rather than by the parent vitamin is highly significant. It is apparent that failure to carry out the necessary hydroxylation reactions in the liver and kidney would create a vitamin D deficiency despite adequate supplies of the vitamin. In the paragraphs to follow some of the clinical aspects of these recently discovered metabolites and structurally related analogs will be discussed briefly.

Hereditary vitamin D dependent rickets is characterized by all of the symptoms of simple D deficiency rickets despite an adequate dietary intake of vitamin D. While these individuals can be cured by massive doses of vitamin D, recent evidence suggests that $1,25\text{-(OH)}_2\text{D}_3$ or a related compound may be the agent of choice. Fraser *et al.*¹ have demonstrated that healing of rachitic lesions could be accomplished with "physiological" quantities of synthetic $1,25\text{-(OH)}_2\text{D}_3$, while large doses of 25-OH-D_3 , and massive amounts of vitamin D_2 and D_3 were required. As suggested by these investigators the probable genetic defect in this disease lies in the inappropriate conversion of 25-OH-D_3 to $1,25\text{-(OH)}_2\text{D}_3$.

A significant number of patients undergoing chronic anticonvulsant therapy with diphenylhydantoin, phenobarbital, or a combination of these two drugs have been found to also suffer from rickets or osteomalacia.²⁻⁴ Although plasma concentrations of 25-OH-D_3 in these patients are positively correlated to vitamin D intake, their 25-OH-D_3 levels are still below normal when compared to control subjects not receiving these drugs.⁵ *In vitro* studies, using hepatic microsomal enzyme systems, suggest that diphenylhydantoin and phenobarbital cause an accelerated conversion of vitamin D_3 and 25-OH-D_3 to inactive metabolites. While therapy in this disorder has mainly consisted of increasing the vitamin D_3 intake, preliminary clinical trials suggest that 25-OH-D_3 may be more effective in treating these patients.

Hypoparathyroidism has classically been treated with large doses of vitamin D (50,000-100,000 U/day) and dietary supplementation of calcium. Vitamin D intoxication and undesirable side effects associated with supplying elemental calcium in the diet are well known disadvantages of this therapy. Since PTH is intimately involved in the renal conversion of 25-OH-D_3 to $1,25\text{-(OH)}_2\text{D}_3$ it would seem that therapy directed at bypassing this hydroxylation step would be more effective. In this regard both dihydroxycholesterol (DHT), a reduction product of vitamin D and 1α -hydroxyvitamin D_3 ($1\alpha\text{-OH-D}_3$), an analog of $1,25\text{-(OH)}_2\text{D}_3$, are considered to be superior to vitamin D.⁷ The effectiveness of DHT is attributed to the hydroxyl at position 3 which is geometrically similar to the 1 hydroxyl of $1,25\text{-(OH)}_2\text{D}_3$. Both DHT and $1\alpha\text{-OH-D}_3$ are

thought to undergo 25 hydroxylation before exerting biological activity.

Osteodystrophy associated with chronic renal failure has been recognized for many years. Bone disease in this disorder, manifested as rickets, osteomalacia, and/or osteitis fibrosa cystica, has been especially prominent in recent years due to the extension of life expectancy resulting from dialysis therapy. Rickets and osteomalacia are attributed to an apparent vitamin D deficient state while osteitis fibrosa cystica is considered to be the result of secondary hyperparathyroidism. Until recently the most attractive hypothesis explaining the genesis of secondary hyperparathyroidism in uremic patients was that suggested by Bricker *et al.*⁸ According to their hypothesis, progressive nephron destruction leads to impaired phosphate excretion with the resulting hyperphosphatemia evoking a reciprocal fall in plasma calcium. The ensuing hypocalcemia serves as a stimulus for PTH secretion which, in turn, acts on the remaining nephron population to induce phosphaturia. Correction of the plasma phosphate concentration occurs, however, only at the expense of some degree of hyperparathyroidism. This sequence of events continues until GFR falls below 30% of normal at which time the remaining nephrons are considered to be incapable of correcting the hyperphosphatemia. While some evidence can be marshalled for this hypothesis, a more simple and direct explanation can now be offered. It is apparent that as functional renal mass decreases, the ability of the kidney to produce adequate amounts of $1,25\text{-(OH)}_2\text{D}_3$ is compromised. Decreased levels of $1,25\text{-(OH)}_2\text{D}_3$ would lead to impaired intestinal calcium absorption, hypocalcemia, and poor mineralization of bone. Excess PTH secretion induced by hypocalcemia could, in the presence of some $1,25\text{-(OH)}_2\text{D}_3$, act on bone to bring about resorption. Thus, a progressive failure of the kidney to hydroxylate 25-OH-D_3 not only provides a basis for the development of renal osteodystrophy, but in addition explains the noted vitamin D resistance to this disorder.

Although clinical trials with $1,25\text{-(OH)}_2\text{D}_3$ have just started, encouraging results have already been reported. Studies in uremic patients have demonstrated increased intestinal calcium absorption, elevated serum calcium levels, and decreased PTH values.⁹ However, a distressing

feature of these trials has been the failure to satisfactorily reverse the existing bone lesions. DeLuca¹⁰ has suggested that this failure may be due to oral rather than intravenous administration of the metabolite. His studies have demonstrated that intravenous administration of 1,25-(OH)₂D₃ not only increased intestinal absorption of calcium and repressed PTH levels, but in addition brought about mineralization of bone.

The synthesis of 1,25-(OH)₂D₃ at this time is a very difficult and expensive procedure. Thus, its current use is limited to a few clinical investigators. An adequate replacement may, however, exist in 1- α -OH-D₃, an active analogue of 1,25-(OH)₂D₃. Synthesis of 1- α -OH-D₃ is less complex and preliminary results indicate that this compound, given either orally or intravenously, is also therapeutically effective in the treatment of renal osteodystrophy.¹¹

REFERENCES

1. Fraser, D., S. W. Kooh, H. P. Kind, M. F. Holick, Y. Tanaka, and H. F. DeLuca. Vitamin-D-dependent rickets: An inborn error of vitamin D metabolism. *N. Eng. J. Med.* 289:817-822, 1973.
2. Dent, C. E., A. Richens, D. J. F. Rowe, and T. C. B. Stamp. Osteomalacia with long-term anticonvulsant therapy in epilepsy. *Brit. Med. J.* 4:69-72, 1970.
3. Tolman, K. G., W. Jubiz, H. F. DeLuca, and J. W. Freston. Rickets associated with anticonvulsant medication. *Clin. Res.* 20:414, 1972.
4. Medlinsky, H. L. Rickets associated with anticonvulsant medication. *Pediatrics* 53:91-95, 1974.
5. Hahn, T. J., B. A. Hendin, C. R. Scharp, and F. G. Haddad, Jr. Effect of chronic anticonvulsant therapy on serum 25-hydroxycalciferol levels in adults. *N. Eng. J. Med.* 287:900-904, 1972.
6. Hahn, T. J., S. J. Birge, C. R. Scharp, and L. L. Avioli. Phenobarbital-induced alterations in vitamin D metabolism. *J. Clin. Invest.* 51:741-748, 1972.
7. Schneider, A. B., and L. M. Sherwood. Pathogenesis and management of hypoparathyroidism and other hypocalcemic disorders. *Metabolism* 23:871-898, 1975.
8. Bricker, N. S., E. Slatopolsky, E. Reiss, L. V. Avioli. Calcium, phosphorus, and bone in renal disease and transplant. *Arch. Intern. Med.* 123:543-553, 1969.
9. Brickman, A. S., J. W. Coburn, and A. W. Norman. Action of 1,25-dihydroxyvitamin D₃ in normal man and patients with renal failure. *Ann. Intern. Med.* 80:161-168, 1974.
10. DeLuca, H. F. The kidney as an endocrine organ involved in the function of vitamin D. *Am. J. Med.* 58:39-47, 1975.
11. Chan, J. C., S. B. Oldham, M. F. Holick, and H. F. DeLuca. 1- α -hydroxyvitamin D₃ in chronic renal failure. *J. Am. Med. Assoc.* 234:47-52, 1975.

REVIEWS

1. Omdahl, J. L., and H. F. DeLuca: Regulation of vitamin D metabolism and function. *Physiol. Rev.* 53:327-372, 1973.
2. Rasmussen, H., "Parathyroid hormone, calcitonin, and the calciferols." In: *Textbook of Endocrinology*, W. B. Sanders Co., Philadelphia. 1974, pp. 660.
3. Kodicek, E.: The story of vitamin D. *The Lancet* 1:325-329, 1974.



University of Arkansas College of Medicine

1975-76, Report of the 97th Year

Thomas A. Bruce, M.D.*

"The hardest conviction to get into the mind of a beginner is that the education upon which he is engaged is not a college course, not a medical course, but a life course, for which the work of a few years under teachers is but a preparation." Sir William Osler, *The Student Life*, 1905.

It is a great temptation to make this year's report to the Medical Society an anthology of some of the outstanding teachers we have in this Medical College. Over the past twenty years I have been affiliated with some of the best known universities in the United States and England. Nowhere have I encountered a finer group of dedicated and hard-working teachers than now are gathered at Arkansas. Although little more will be said about them in the material which follows, it should be obvious that none of the splendid things that are happening in the University these days would be possible without their leadership and enthusiastic support.

Major Program Areas. Under the recent reorganization of the Medical Center into a full-fledged campus, the University of Arkansas for Medical Sciences (UAMS), the medical school got both a name change (now the College of Medicine) and a functional realignment. The faculty of the College of Medicine are responsible not only for medical student education, but for intern-resident education, a good share of the graduate student education on this campus, and the continuing education program for practicing physicians. Each of these four groups now has become a major program target, with the aim of improving the effectiveness and efficiency of learning in each area. The relative size of each of the four areas is depicted in Figure 1.

The *Predoctoral Medicine* program represents the traditional medical student curriculum. During the first two years the student is concerned primarily with fundamental courses which relate to the normal structure and function of the body, and how these are altered by disease. To give these studies more meaning, provision is

made for direct contact with patients from the onset of the first year and continuing throughout the second year.

The freshman year is 36 weeks long. Instructional time is spent in the following manner: gross anatomy 23%, microanatomy 18%, physiology 23%, biochemistry 12%, neurosciences 11%, miscellaneous 13%. There are 93 clock hours for the course "Introduction to the Patient." In addition, nearly half the biochemistry course time, and a significant but smaller amount of time in other courses, is spent in clinical correlation.

The sophomore year is shorter by six weeks than the first. Pathology is the biggest block, accounting for 43% of instructional time. Pharmacology occupies 21% of the year and Microbiology-Immunology 17%. Some 84 hours are spent in Interviewing and Examining (the old physical diagnosis course). Elective preceptor experiences with physicians throughout the State are popular at the end of the sophomore year.

During the junior year the student begins clinical training in depth, spending 12 weeks each in the Medicine, Surgery and Pediatric/Neurology clerkships, and six weeks each in Psychiatry and the Reproductive Medicine (Ob-Gyn) clerkships. In each of these the student is assigned to an existing faculty-housestaff team, and within that context begins to assume direct responsibilities for patient care.

The senior program is entirely selective to provide each student an opportunity to choose courses suited to his/her individual needs. Gen-

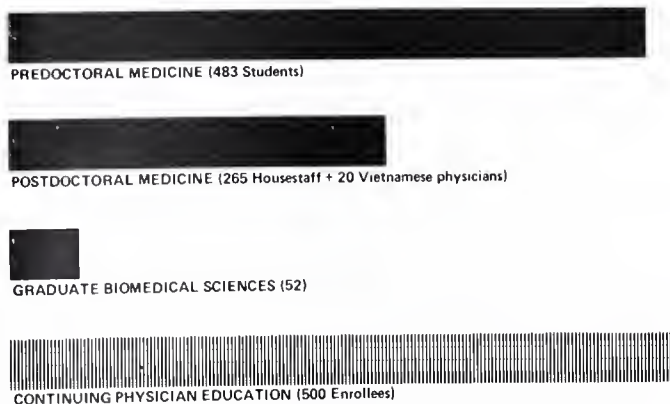


Figure 1.
Students, Trainees and Formal Participants in Programs of the College of Medicine.

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eral review courses and a wide variety of special clinical experiences are available in each Department. The student elects a minimum of 36 weeks of study with the advice and approval of a Faculty Advisor. Research studies or off-campus electives may be selected with prior approval.

Curricular reform is a never-ending process. Recommendations for change are made by the Council for Academic Affairs, an elected body of faculty and students from each organizational Division and Department of the College of Medicine. Five curriculum committees are incorporated within the Council, one for each of the four years and a master committee for Long Range Planning.

All academic work is conducted under an honor system which is administered by a student Honor Council. The standard A, B, C, D, F grading system is used by the faculty. A special Scholars Honor Program is being carried out on a pilot basis for a few selected students. The program encompasses the entire four years of school and substitutes advanced study and clinical research for many of the standard courses.

For the first time this year all specific pre-medical college courses which traditionally have been required for admission have been deleted. The purpose is to make each applicant more responsible for his or her own premedical education and to broaden the base of cultural experience prior to entering medicine. Students considering a career in medicine are advised to get a solid foundation in biology, chemistry, physics and mathematics, behavioral sciences, and the humanities.

The Admissions Committee this year has been expanded and diversified by act of the State Legislature. There are fifteen total members, with a minimum of two chosen from each of the four congressional districts of Arkansas. The new appointees have responded in a superb manner and have spent numerous hours away from their practice to review the large number of applicants. Announcements for the last of the 121 successful candidates were mailed on March 15, 1976. All new freshmen will be legal residents of Arkansas.

Students currently enrolled in the College of Medicine are shown in Figure 2 by county of origin. The large number of students who live in Pulaski County are represented by a star instead of individual dots for reasons of graphic



Figure 2.
County of Origin of Predoctoral Medical Students, College of Medicine, 1975-76. Each dot represents one student. See text for comments on Pulaski County.

simplicity. The proportion of medical students to undergraduate college students accepted from Pulaski County is at about the median level of other counties. One-fourth of all students are from towns smaller than 6,000 population, another fourth are from the three largest cities (Little Rock, Fort Smith and Pine Bluff) and the other half are from towns of intermediate size.

The *Postdoctoral Medicine* program focuses on the years of formal training as a clinical intern or resident physician. During this time increasingly heavy responsibility for patient care and in-depth clinical training occur under faculty supervision. Numerous formal conferences and seminars are held at regular intervals and bedside teaching sessions occur daily. Voluntary faculty join the full time faculty in instructional activities.

The first postdoctoral year is variably called the internship or first year of residency. Straight internships are offered in Family Medicine, Internal Medicine, Pediatrics, Obstetrics-Gynecology, Pathology and Surgery. All other internships at UAMS are Mixed Medicine: eight months are allowed in the discipline of choice but four months of Internal Medicine are required. The Mixed Medicine internship is offered jointly by the University Hospital, Baptist Medical Center and the St. Vincent Infirmary.

Second, third and fourth year postdoctoral residencies are offered in most all the specialties

of medicine. The average period of clinical training as a resident physician is three years. A small number of clinical or research fellowships is available to qualified applicants with previous residency training. Information and application forms may be obtained by contacting the appropriate departmental chairman.

The *Graduate Biomedical Sciences* program offers studies leading to a Master of Science or Doctor of Philosophy degree in any one of the following fields: anatomy, biochemistry, interdisciplinary toxicology, microbiology, physiology and pharmacology. Master's degree courses are also available in biometry (biostatistics) and pathology. The Graduate School is an inter-campus program of the University of Arkansas system and applicants must meet prespecified entrance requirements. The details for admission are available in the UAMS Graduate office or can be obtained from the appropriate department chairman. It is apparent that an excellent graduate program has great importance in the quality of both predoctoral and postdoctoral medical education.

The *Continuing Physician Education* program has been significantly upgraded because of the level of statewide need and the likelihood of many additional requests for help in future months. The objectives of this program are 1) to provide physicians in practice the opportunity to maintain and increase their knowledge and skills in the care of patients, 2) to make available appropriate continuing education credits to participants, 3) to stimulate physicians to continue the life-long process of learning, 4) to encourage experienced practitioners to participate as teachers within the program, and 5) to extend the outreach to all doctors within Arkansas.

All official College of Medicine programs have been approved for Category 1 credit by the American Medical Association and most have approval also of the American Academy of Family Practice. The majority of courses now are located on the UAMS campus, but selected conferences and courses for credit are available in other towns.

The *Area Health Education Centers (AHECs)* in Arkansas are closely allied with three of the major program areas discussed above. Predoctoral education usually takes the form of senior elective courses offered in the AHEC hospitals and clinics. Residency training is available at

selected locations and has a very high priority for immediate expansion. Family practice residents now are working in the Fort Smith and Northwest Arkansas AHECs; internal medicine residents rotate through the Pine Bluff, Fort Smith and El Dorado AHECs. Programs in Continuing Physician Education are available in all six of the Centers.

The unexpected death earlier this year of Dr. Winston K. Shorey, beloved former Dean and Director of the AHEC program at the time of his demise, leaves a tremendous gulf to be filled. Dr. James L. Dennis, Chancellor of UAMS, recently has asked Associate Dean Roger Bost to serve in this vital post until a Search Committee recommends a successor.

PAST PERFORMANCE AND FUTURE PLANS

During this year a major opinion survey was made of our faculty and students, of 100 members of the Arkansas Medical Society selected from throughout the State, and of 50 prominent laymen known to be interested in health affairs. Each was asked to value-rate a large number of statements about potential future directions for the College of Medicine. The consensus of that survey is depicted in Figure 3. The questionnaire results narrowed the future to four key missions, all considered of "high importance." At very top priority during the next five years was the

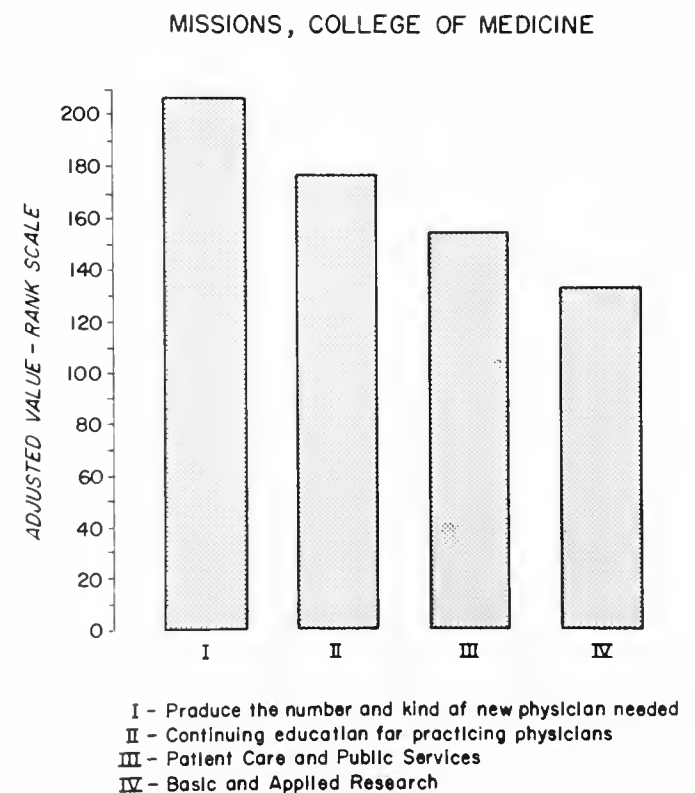


Figure 3.
Major Missions for the College of Medicine during the next five years.

need to produce the *numbers* and the *kinds* of physicians needed by the State. Next in importance was expansion of the continuing education program. Third was further development of the University Medical campus as a consultation and resource center for patient services, and fourth was an improved capacity to develop as an academic research center.

If the number of practicing physicians emerging from our College is to be increased significantly for this State, we have no alternative but to increase the number of postdoctoral (intern-resident) training slots. For the past several years the focus has been on increasing the number of predoctoral (medical student) positions. Year by year the number has been rising; this year we will graduate 30% more Doctors of Medicine than we did five years ago. But we have internship positions in Arkansas for barely more than half of our own graduates; the others must of necessity go out of State for postdoctoral training. Experience tells us that the majority will not return! The reverse is also true: the great majority of those physicians who obtain their postdoctoral training here (whether or not they are Arkansas graduates) will ultimately practice somewhere in the State.

So why not double the number of internship positions next year? Reason number one: money. Sixty positions \times \$11,000 (the announced starting salary for first year postdoctoral trainees in July, 1976) is \$660,000. The second year of residency the cost would be \$1,356,000 and the third year \$2,088,000 — assuming a commitment to keep the new slots open on a continuing basis and assuming no cost-of-living salary adjustments. Reason number two: new patient teaching units would need to be found. Our three primary teaching hospitals (University, Little Rock V.A., and the Arkansas Children's Hospital) already are used to capacity and a few residency programs have spread, rather unsteadily in some instances, to private hospitals in Little Rock. The AHEC hospitals could be a tremendous asset in the solution to this problem. Reason number three: additional faculty would have to be found. Voluntary help from practicing physicians would be valuable, but for residency training it cannot be a substitute for full-time physicians with a special commitment to teaching and scholarship. And by its very nature residency training re-

quires more intensive tutorial (one on one) teaching than would be needed for ordinary classroom instruction.

It can be done and it will be done. But the expansion of the postdoctoral education programs will have to be a gradual process rather than a precipitous, inadequately planned effort. No other single change is likely to produce results for Arkansas as directly as this one.

The *kinds* of physicians who emerge from the College of Medicine become important if the goal is the solution of the doctor-deficit in the small towns of Arkansas. This State has a need for all kinds of medical and surgical specialists, but of greatest priority are those physicians who are willing to assume responsibility for primary (all-inclusive) medical care. Primary physicians have been produced in increasing numbers from this school over the last several years. In Table I can be seen an analysis of the percent of all graduates who go into the major disciplines of medicine. For ease of analysis, these have been grouped into three-year clumps, in order to gain perspective on the direction of recent change. It is apparent that in the last clump (the graduating classes of 1972, 1973 and 1974) nearly

Table I.
PERCENTAGES OF THE UNIVERSITY OF
ARKANSAS COLLEGE OF MEDICINE
BY SPECIALTY
ALL GRADUATES 1963-74

	1963-65	1966-68	1969-71	1972-74
I. Primary Care				
Family Practice	22.8%	24.1%	31.1%	36.4%
Internal Medicine	12.9%	15.5%	15.4%	16.3%
Pediatrics	8.9%	4.1%	4.3%	6.5%
	44.6%	43.7%	50.8%	59.2%
+ Obstetrics	7.1%	7.3%	4.3%	4.8%
	51.7%	51.0%	55.1%	64.0%
II. Consultative				
General Surgery	8.0%	7.3%	7.5%	7.1%
Anesthesiology	4.5%	1.6%	3.6%	5.4%
Ophthalmology	3.6%	4.5%	5.7%	4.8%
Psychiatry	5.8%	3.7%	4.6%	4.1%
Radiology	8.9%	10.6%	4.6%	3.7%
Pathology	2.7%	4.9%	5.4%	3.1%
Orthopaedic Surgery	5.4%	6.5%	2.5%	2.0%
Urology	1.3%	2.0%	3.6%	2.0%
Dermatology	3.1%	3.3%	1.1%	1.0%
Neurology	0.9%	0.8%	1.1%	1.0%
Ear-Nose-Throat	2.7%	2.9%	3.2%	0.7%
Neurosurgery	0.9%	1.2%	0.7%	0.7%
Other	—	—	1.4%	0.3%
	47.8%*	49.3%*	45.0%*	35.9%*

*Figures do not add exactly to 100% because of mathematical averaging.

two-thirds of our graduates are entering primary care disciplines. There is a concomitant fall-off in the percent of graduates entering the major subspecialty (consultative or tertiary care) disciplines. This trend is seen even more clearly in Figure 4, where the actual number of Arkansas graduates each year are plotted as entering either primary or tertiary care. This graph would suggest that the University of Arkansas is unique among all other traditional medical colleges in the proportion of its graduates entering primary care disciplines. The national trend is that the number of graduates entering primary care disciplines is rising, but that there is little or no reduction in the rate of entry into the subspecialty disciplines. In Figure 5 can be seen the breakdown of the four major primary care disciplines (obstetrics is included because most obstetricians do assume the responsibility for all

medical care of their patients during the child-bearing years). It is clear that Family Practice is increasingly the discipline of choice for Arkansas graduates. It also is interesting that this trend in student choice began at least ten years ago, long before we had a recognized teaching program in Family Medicine. Our present Department of Family and Community Medicine has been in existence only for about four years.

The second key mission for the next five years is to expand further the continuing physician education program. Since this effort does not receive financial support from the State Legislature, it must be built methodically and efficiently. Participating physicians will be expected to share in the costs involved, and there is little doubt but that they will do so willingly if the quality of the instruction is sound. Both the frequency and the spectrum of courses will be increased as demand allows. Arrangements can be made for individual physicians to become a part of the University Hospital staff in some areas for a period of three to six weeks, or even longer, in order to gain new experience in selected areas. The regionalized AHEC conferences for continuing education will be strengthened and expanded.

The third mission of high importance for the next five years is to improve the University's capability to respond to requests for advice in medical diagnosis and treatment. The installation of a new Centrex telephone system is the first step in such a direction. It will provide physicians around the State direct access to the offices of University consultants, without having to pass the barrier of the understaffed central switchboard. Each Department and Division in the College of Medicine currently is evaluating the particular medical care services most needed across the State. If in the future the University Hospital can serve Arkansas physicians better as an intensive care-unique special services institution than as a general community hospital, it is important to begin planning in that direction.

The last important mission is to increase our efforts in basic and applied research. There is little enthusiasm here or elsewhere for the University to assume the functions of a true research institute. Rather, it is hoped that each member of the faculty, each teacher, will make a studied effort to push back the frontiers of medical

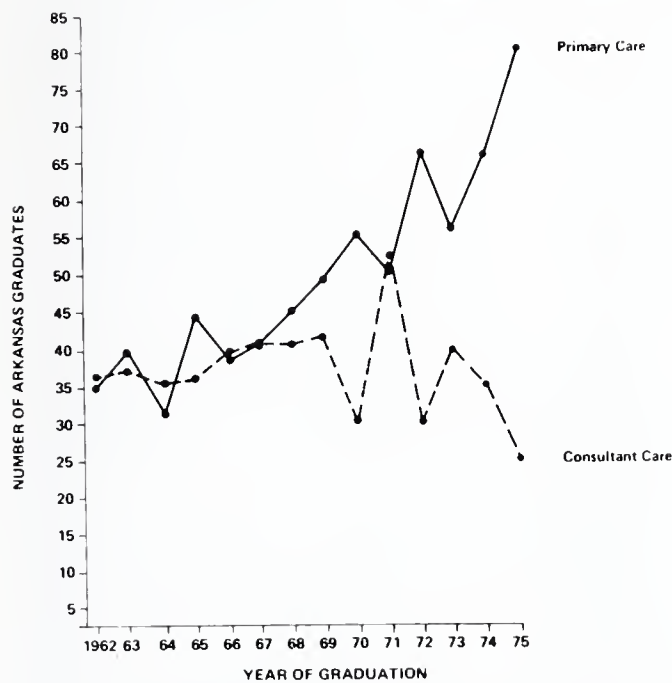


Figure 4.
Number of Arkansas Medical Graduates, by year, who enter primary care or tertiary (consultant) care disciplines.

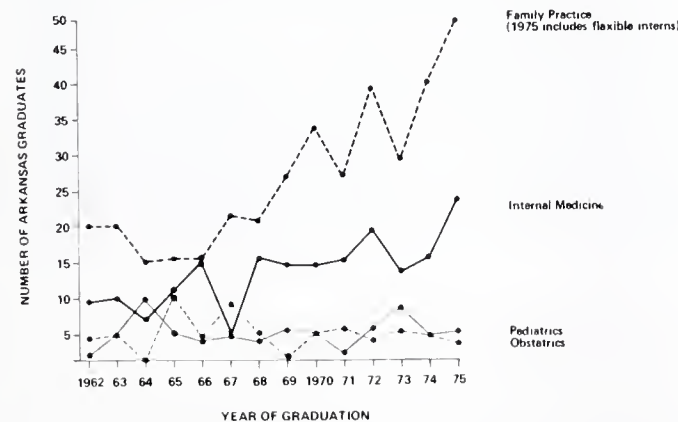


Figure 5.
Number of Arkansas Medical Graduates, by year, who enter the various primary care disciplines.

ignorance a little bit—to identify the critical clinical problems and work individually or collaboratively to develop solutions. There are four general levels of research now ongoing in the College: basic bench research, clinical (patient related) investigation, research in medical education, and research in the delivery of medical care. Each has its own relative importance; the University will have to assume leadership in most of these areas if Arkansas is going to be a participant in this phase of national progress.

The Newest Thing: Community Medical Affairs: Any town which needs an additional physician (or thinks it does) faces two problems: first it must flag the attention of a prospective doctor and recruit him/her to set up practice there, and second, it must retain the new doctor for a reasonable period of time. The Arkansas Medical Society for years has sponsored a Physician's Placement Service that has played an important role in matching needy communities with interested doctors. A year ago the Medical School joined hands with the Society (with help from the Arkansas Caduceus Club) in setting up an "Opportunity Fair" day on the University Medical campus. Interested towns came in to meet medical students and members of the house-staff and tell them of their need for physicians. The response from the students was so dramatically positive that an Office for Community Medical Affairs has now been established on a full-time basis in the College of Medicine to sustain student interest in practicing in Arkansas. An attractive permanent display in the University Hospital lobby features a town in Arkansas which needs doctors; the display is changed at frequent intervals so that as many towns can be represented as possible. The intent is not to sell a particular community but to keep in front of our students the continuous message that Arkansas needs them. The Office for Community Medical Affairs also sponsors student tours to needy towns, organizes symposia about regional

development efforts, keeps in touch with interested community leaders about UAMS activities, and so on.

The other aspect of community need is the ability to retain those doctors who have been recruited. This year we decided to have a look at how our recent graduates have fared after completion of their training. At first glance there would appear to be a surprisingly large turnover during the first two years in practice. If this observation is confirmed, new questions must be posed . . . are our graduates not trained adequately to set up and manage a practice? Are we teaching them to be excellent physicians but providing them no understanding of how to deliver their expertise? Should we be teaching the towns how to respond better to the needs of their doctors? All these are troublesome questions and major changes in our educational program would be needed to bring about a solution. To get better information on the retention problem, an Office for Research in Medical Practice has been established; financial support has been obtained from the Winthrop Rockefeller Foundation and field studies have been initiated. Subsequent reports to the Medical Society will highlight the findings of this research.

Conclusion: As we move towards our centennial year in 1979, the College of Medicine likely will continue to improve in teaching, searching and serving. In the long run we will be known by the kinds of physicians who emerge. Over the years a reputation has been achieved that I would like to believe is now a tradition: it is that we train outstanding clinicians. What we hope for is to train more doctors who are knowledgeable and who keep knowledgeable, who have acquired superb skills and who update those skills regularly, and who have developed and maintained attitudes befitting this great human service profession. If we succeed in these simple goals, it will not have been a century wasted!

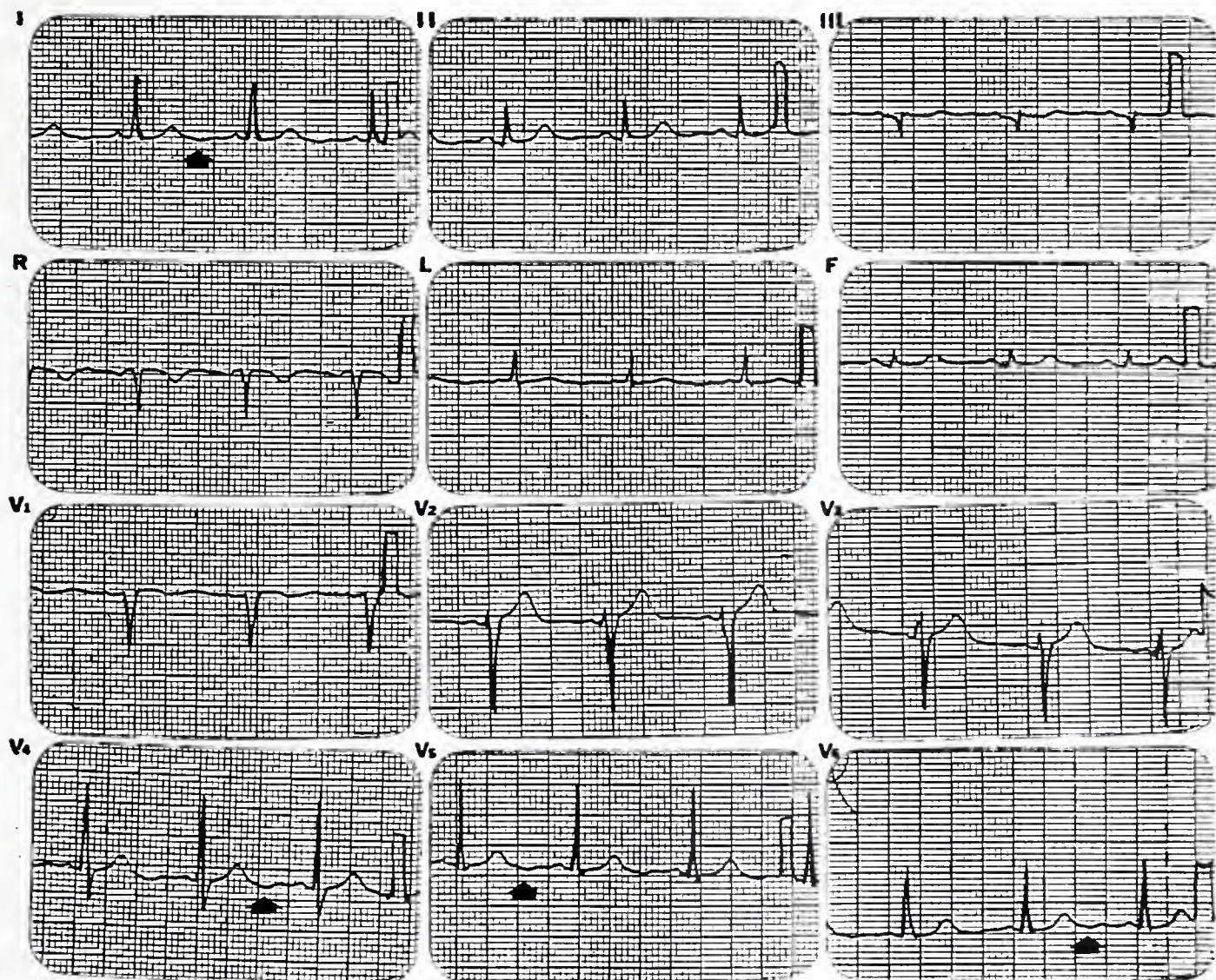




• • • • •
The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 278)

G. L. 47-year-old male, medium build with blood pressure 160/90.



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Office Orthopaedics

The Osteochondroses

Philip H. Johnson, M.D.*

The osteochondroses constitute a group of self-limiting diseases affecting the growing epiphysis in childhood with the same common denominator . . . focal avascular (ischemic) necrosis of bone. The primary growth centers are involved in the first decade, while the accessory centers of ossification are involved in the second decade of life. It is the purpose of this report to provide the reader with an overview of this subject.

There has been confusion with the nomenclature of these similar epiphyseal affectations. They have been referred to as "osteochondritis" as recently as 1968 in the *Index Medicus*. Legg-Perthes disease is sometimes referred to as osteochondritis deformans. Apophysitis of the calcaneus (Sever's disease) is clearly an osteochondrosis. There is no definite evidence that infection is a cause of these syndromes, and therefore, the "itis" term should be discarded.

In some places in the literature, the osteochondroses have been lumped in with the osteochondrodystrophies (Morquio's, etc.). They have nothing in common with these hereditary dysplasias of cartilage and bone.

To add to the confusion, eponyms are extensively used in reference to this condition in various parts of the body. In Table 1 you will find a listing of most of the areas where it occurs, and the physician responsible for describing it in that location. A convenient way to refer to the disease in a common location is by the eponym (Fig. 1).

Osteochondritis dessicans of the medial femoral condyle is mentioned here because it is a focal avascular lesion of bone. Breck in his mon-

ograph, however, strongly opposes including it with the osteochondroses. Calve's disease of the vertebra, previously classified as an osteochondrosis, is now known to be a pathologic compression fracture of the vertebral body, secondary to eosinophilic granuloma.

Etiology: The basic pathologic process common to all these syndromes is a focal avascular degeneration of bone, while the precipitating cause is often obscure. Infection and endocrine disturbance have been, for the most part, discredited. Trauma, however, seems often to be a factor. Repeated injury to the throwing elbow in a youthful pitcher may produce, in effect, Panner's disease. Compression trauma plays a role in Legg-Perthes' disease, and is definitely a factor in Blount's disease of the upper tibia. Traction injury certainly contributes to the occurrence of all the so-called "traction osteochondroses" (Table 1).

Diagnosis: Usually pain and swelling are present. A limp may be present if the lower extremity is involved. Joint motion is limited by synovitis and the associated guarding. Local heat may be palpated, but a systemic reaction is rarely present. X-rays show varying stages of involvement and are usually diagnostic. Early, there is cessation of growth in the epiphysis, making it appear small. This is followed by fragmentation and alteration of the general contour, as compared with the normal side. Later revascularization and resolution is seen, often with deformity and joint incongruity.

Course: These avascular processes affect the epiphyseal growth centers of a child. They are referred to as self-limiting because there is al-

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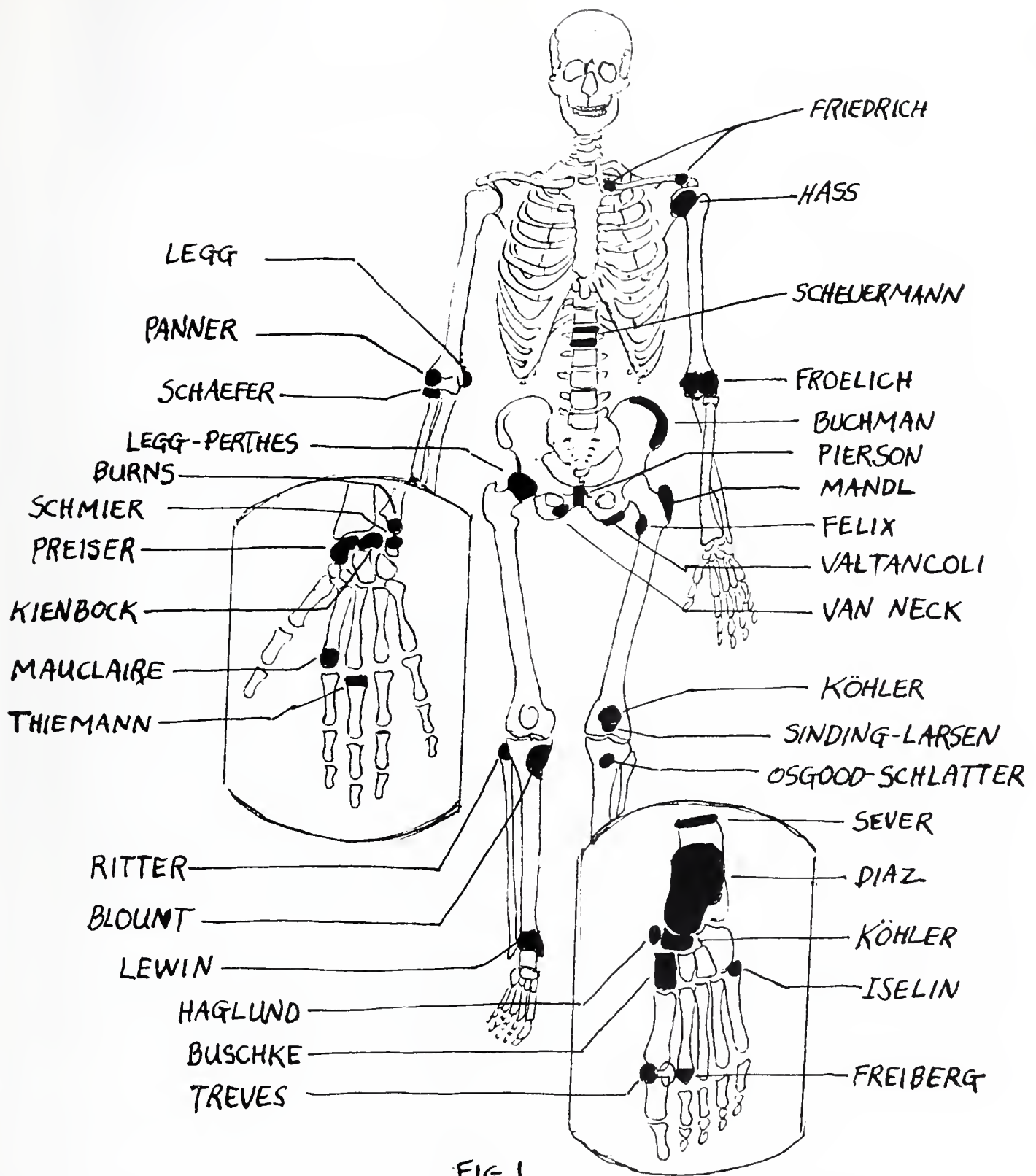


FIG. 1

ways an attempt on the part of the body to heal and revascularize the dead bone. This is usually successful, and at the time of skeletal maturity, fusion of the affected epiphysis with the diaphysis across the epiphyseal plate occurs. Late problems are brought about by deformity. A shortened and misshapen femoral head in Legg-Perthes' disease leads to early degenerative arthritis. The bowlegs seen in Blount's disease and

the thoracic kyphosis in Scheuermann's disease produce gross deformities. Some of these syndromes on the other hand, like Sever's disease, heal at skeletal maturity without any residual evidence of the disease having existed. Consequently, some orthopedists question their inclusion with the osteochondroses. Osgood-Schlatter's disease usually heals without sequelae but can leave a painful ossicle of bone over the

Table 1.

LOCATION	EPONYMS
*calcaneus	Sever
carpal scaphoid	Preiser
clavicle	Friedrich
cuneiform	Buschke
*femur, greater trochanter	Mandl
*femur, lesser trochanter	Felix
femoral capital epiphysis	Legg-Perthes
*fibular head	Ritter
humeral head	Hass
humeral capitellum	Panner
humeral condyles	Fröelich
*humerus, medial epicondyle	Legg
*iliac crest	Buchman
*ischial tuberosity	Valtancoli
ischiopubic junction	Van Neck
lunate	Kienbock
metacarpal heads	Mauclaire
*metatarsal base, fifth	Iselin
metatarsal head, second	Freiberg
*olecranon	Mouchett
patella, primary center	Köhler
*patella, secondary center	Sinding-Larsen
phalanges	Thiemann
pisiform	Schmier
radial head	Schaefer
sesamoids	Treves
spine	Scheuermann
symphysis pubis	Pierson
talus	Díaz
tarsal navicular	Köhler
*tarsal navicular, accessory	Haglund
tibia, distal	Lewin
tibia, proximal	Blount
*tibial tuberosity	Osgood-Schlatter
ulna, distal	Burns
*traction osteochondroses	

tibial tubercle. In general, when this condition occurs in the accessory centers of ossification (apophyses) during the second decade, the prognosis is good. The child is nearer to skeletal maturity, and a non-weight bearing bone is in-

involved. When the disease occurs during the first decade of life in a primary epiphysis, contributing to length growth of bone, especially if it is weight bearing, late sequelae and deformity usually occur.

Treatment: Initial treatment is conservative. Rest is primary, whether it be limitation of weight bearing or plaster immobilization. Supportive splinting frequently relieves symptoms. Restriction of activities is indicated. Explanation and reassurance are greatly appreciated by both parents and patient. Braces are used in Blount's and Scheuermann's disease to redirect growing bone. Bracing is used in Perthes' disease to limit weight bearing and control hip position. Surgery is usually indicated only late in the course of the disease when malalignment and/or incongruity of joint surfaces make reconstruction necessary.

Summary: A detailed description of each of these diseases is not the purpose of this paper. A general overview of these diseases of like pathophysiology should give the reader an appreciation of their similarities. Grouping these conditions under one title, "The Osteochondroses," should help in remembering to include them in the differential diagnoses of lesions of growing bone. Descriptions of most of these diseases are available in any general orthopedic text. The bibliography and the literature at large will provide detailed information on the remainder.

BIBLIOGRAPHY

1. Breck, Louis W.: An Atlas of the Osteochondroses. Springfield, Thomas, 1971.
2. Goff, Charles W.: Legg-Calve-Perthes Syndrome and Related Osteochondroses of Youth. Springfield, Thomas, 1954.



Dietary Fiber—What Is It?

Mrs. Kathleen L. Brown*

Dietary fiber consists of plant materials ingested in the diet which are resistant to digestion by the secretions of the human gastrointestinal tract. These materials are present in the cell walls of leaves, stems, roots, and seeds. Food composition tables give the crude fiber content of food which is the insoluble materials remaining after boiling the food with solutions of sulfuric acid and sodium hydroxide. It is necessary to use crude fiber as an index of dietary fiber in nutritional consideration since values for dietary fiber are not available; it has been estimated that crude fiber represents only about one-fourth to one-half of the true fiber present in various foods and diets.

The general physiology of dietary fiber can be stated, that one can influence fecal output and bowel habits by increasing dietary fiber. The contributing factors to fecal output and bowel habits are (1) bulk excreted, (2) osmotically held water, (3) soft stools. Dietary fiber increases stool frequency through bulk and stimulant properties of volatile fatty acids released by bacterial metabolism.

Sherman stated in an article, *The Case For Fiber*, "the most significant change in consumption of foods in this country, since the early 1900's, which has had a major effect upon dietary fiber intake, is the decline in consumption of foods derived from cereal grains." Scala (Food Technology 25:34, 1974) estimated that the fiber from fruits and vegetables has declined by 20% and from cereals by as much as 50% in this century. Scala concluded that our dietary fiber has declined by 83% in the past century and this is probably a conservative figure.

DIETARY FIBER ASSOCIATED WITH CLINICAL DISEASE ENTITIES

(1) Bowel diseases associated with small stools and prolonged transit time: Diverticulosis, ap-

pendicitis, and benign and malignant tumors of colon and rectum.

D. P. Burkitt, an English surgeon and epidemiologist, has been outspoken in indicating the role of fiber in the etiology and treatment of various alimentary diseases. Burkitt feels that dietary fiber may reduce the risk of colonic cancer by accelerating elimination of carcinogens that are produced by bacterial action on bile salts. He does not say that reduced dietary fiber is the sole cause of the diseases in question. He does suggest that if further studies bear out his hypothesis that the lack of fiber is strongly implicated, "it may not be an exaggeration to predict that a return to a high-residue diet could have an effect on the health of Western nations as beneficial as would be the elimination of smoking." He maintains that "geographically and chronologically, without exception, all populations accustomed to diets high in fiber have negligible or low prevalence of these diseases."³ M. J. Hill, London, in demographic studies, has linked colonic and rectal cancer to populations with high meat and fat intake. In case-controlled studies he has found no relation between constipation and cancer in these sites. He has postulated that "intestinal bacterial flora produce colonic carcinogens or cocarcinogens from bile acid, the concentrations of which are ultimately influenced by the amount of intake of dietary fat."

J. Mayer says that "absence of fiber in the diet has been correlated with the development of diverticulitis and cancer of the large bowel, although the case is not yet proved." He concedes cautiously that "by shortening the time feces stay in the intestines fiber may protect us" from these problems.¹⁴

(2) Diseases associated with straining at stool: Varicose veins, deep vein thromboses, hemorrhoids and hiatal hernia.

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In Britain, Cleave, Campbell, Painter, Burkitt, Ahmed, Clebourn, Trowell, et al., have expanded the incrimination of fiber depletion to include the prevalence of many other diseases — obesity, diverticulosis, colonic cancer, varicose veins, hemorrhoids, and hiatal hernia.

OTHER DISEASE ENTITIES

Heaton (England) has presented the premise "that coronary heart disease is a disease of involuntary overnutrition caused mainly by taking foods and drinks which have been depleted of fiber." He cites statistics gained from the sixteen-year follow-up of the Farmingham, Massachusetts, study which correlates change in weight with four high risk factors associated with coronary heart disease — systolic blood pressure, serum cholesterol, fasting blood sugar, and serum acid. When patients were persuaded to lose weight all four factors were lowered, even if the starting weight was within accepted norms. Heaton observes that in the manufacture of most popular carbohydrate foods (sugar, white flour products, many breakfast cereals) most fibrous materials are removed, so less chewing is required. Since the food is physically easier to eat, one eats more and thus gets more calories. He also suggests that it takes more refined foods than fibrous ones to attain satiety with resulting higher caloric intake. Thus, food depleted of fiber, he postulates, must be regarded as intrinsically fattening. Fiber, he likens to "an obstacle or brake . . . a prophylactic against obesity," but he hastens to add that it is not a remedy. He proposes as preventive action that we are "not to add fiber to our food, but to stop taking fiber away from it."⁴

It has been consistently observed that on high-fiber diets there is an increased fecal excretion of bile acids and cholesterol and, as that is the main catabolic pathway for cholesterol in man, the plasma cholesterol concentrations are lowered and the development of atheroma is retarded. In the relatively short time that dietary fiber has been under investigation a surprisingly strong case has been built for it in connection with heart disease.

THE OTHER SIDE OF THE QUESTION — DIETARY FIBER

Antia has questioned the postulate of Painter and Burkitt that high fiber dietary intake may

prevent colonic disease. He cites the diet of Indians who consume a high proportion of unrefined cereals and vegetables and have an incidence of colon diverticular disease similar to that of Western peoples. He also questions the linkage of hiatal hernia, coronary heart disease and gallbladder problems to fiber, but blames older age for these diseases. He says greater longevity and better diagnostic resources are bringing them to medical attention.

The extensive use of fiber is not without other associated problems. H. Butler offers the warning that a deficiency of calcium can result if bran is added to diets of reduced caloric value for treatment of obesity when quantities of the main calcium containing foods are considerably reduced. "In such cases," she says, "an additional dietary source of calcium of comparatively low caloric content, e.g., skimmed milk powder, may be necessary within or in excess of the stated caloric value of the diet."¹⁵ Plepmeyer cautions against the use of unprocessed bran for patients with chronic renal disease because of the high phosphorus content.¹³ *Nutrition Reviews* reports that the particle size of the bran affects its efficiency in promoting motility of the bowels, the larger particle having greater water-holding properties thought to be necessary for use in constipation.

Vegetables and fruits such as broccoli, brussels sprouts, cabbage, cauliflower, beets, sweet potatoes, carrots, berries, tomatoes, eggplant and squash have high fiber content.

In breakfast cereals the largest amount of fiber is found in those with "bran" in their names. The fiber content is sometimes indicated on the label. Bran itself is the most concentrated form of fiber. Two heaping tablespoons of bran provide about two grams of fiber. Research has indicated that it may take only two or three grams of cereal fiber in the daily diet to improve bowel functioning and health.

Various food components have been hailed as a panacea for the unhappy diseases and body malfunctions that have plagued our generation. Today, dietary fiber is the *sine qua non* of medical and non-medical writers and editors. There is widening interest regarding the preventive and therapeutic uses of fiber but not a consensus of opinion among scientists. The only indisputable conclusion is that some fibers have hydrophilic

properties that make them useful in prevention and treatment of constipation.

As a preventive measure, Americans should increase their consumption of dietary fiber, found in fruits, whole grains, and vegetables. These foods also have significant amounts of minerals and vitamins. Thus, diets rich in fiber are normally rich in many other nutrients, and for this reason alone, would be strongly recommended.

SELECTED BIBLIOGRAPHY

1. Servaas, Cory (1976) "Fiber Foods: A Grain of Sense," *The Country Gentleman*, 126 (3):12.
2. Vaisrub, S. (1976) "Fiber Feeding — Fad or Finger of Fate?" *The Journal of the American Medical Association*, 235 (2): 182.
3. Walker, A. R. (1974) "Dietary Fiber and the Pattern of Diseases," *Annals of Internal Medicine*, 80:663-664.
4. Heaton, I. W. (1975) "Fiber, Blood-Lipids and Heart-Disease," *Lancet* 2 (7941):927.
5. Editorial (1975) "Dietary Fiber and Plasma Lipids," *Lancet* 2 (7930):353.
6. Trowell, H. C. (1975) "Dietary Fiber Hypothesis," *British Medical Journal* 4 (5997):649.
7. Antia, F. P., et al. (1974) "Colonic Diverticula and Dietary Fiber," *Lancet* 1 (7862):84.
8. Griffin, D. (6-10-76) "Bran Is Now the Darling of Dieters," *Arkansas Gazette*.
9. Floch, M., Ali, M., et al. (1974) "Fiber and Nutritional Diet Content of Northeast American Patients With Colon Disease," *American Journal of Clinical Nutrition* 27 (4):444.
10. Hill, M. J. (1975) "Metabolic Epidemiology of Dietary Factors in Large Bowel Cancer," *Cancer Research* 35 (3398):3402.
11. Sherman, D. H. and Bishop, O. S. (1974) "Diet and Mortality from Malignant Tumors in Thirty-two Countries," *West Indian Medical Journal* 23 (1):44.
12. Cove-Smith, J. R., et al. (1975) "Proceedings: Appendicitis and Dietary Fiber," *Gut* 16 (5):409.
13. Plepmeyer, J. L. (1974) "Letter: Use of Unprocessed Bran in Treatment of Irritable Bowel Syndrome," *American Journal of Clinical Nutrition* 27:106.
14. Mayer, J. (1975) *A Diet for Living*, David McKay Co., Inc., New York.
15. Butler, H. (1972) "Dietary Fiber and Calcium Metabolism," *British Medical Journal* 4:363.
16. "Dietary Fiber and Colonic Function — An Effect of Particle Size?" *Nutrition Reviews* 33 (3) 70.
17. MEDLARS II, Off-Line Bibliographic Citation List by MEDLARS II, NLM's National Interactive Retrieval Service, "Food Elements of Carcinogenicity or Teratogenicity."
18. Sherman, Wm. C., Ph.D., *The Case for Fiber — Food and Nutrition News* 45(4), 1974.



EDITORIAL

The Many Faces of Islet Cell Tumors

Alfred Kahn, Jr., M.D.

The pancreas was recognized by pioneer anatomists as an organ of exocrine function. It was suspected of having an endocrine function but this was not proved until about 50 years ago when Banting and Best proved the presence of insulin in the pancreas. The origin of insulin in the Beta Cells of the Islets of Langerhans is now widely known.

What is less widely known is that Islet Cell tumors can produce at least five different clinical syndromes. This is presented in a National In-

stitute of Health conference moderated by P. S. Schein with discussants R. A. Dehellis, C. R. Kahn, P. Gorden, and A. R. Kraft. The hormones which produce these clinical patterns may come from malignant tumors, benign tumors, or hyperplasia. Special stains are used to try and determine the cell type releasing the hormones; electron microscopy is helpful in some cases as for example Beta Cells have a dense distinctive membrane around their granules.

The five clinical syndromes are pancreatic

cholera produced by ? Delta Cell, Zollinger-Ellison syndrome by the Delta or Alpha I Cell, hyperglycemia by the Alpha II Cell, hypoglycemia by the Beta Cell, and carcinoid syndrome by the non-Beta Cells.

The clinical spectrum, as C. R. Kahn points out, is the result of hypersecretion of hormones. The hormones are said to be divided into two general types: native cell hormones and ectopic hormones. The former include mostly the hyperinsulinism and hypergastrin syndromes; of the latter, secretion which causes a cholera-like syndrome is the commonest. Several hormones may be secreted giving a mixed pattern. Of particular interest in recent years is the Zollinger-Ellison syndrome of hypergastrinemia manifested by abdominal pain and diarrhea. The gastrin in this syndrome is heterogeneous and consists of several components; 20% to 50% of the patients with Zollinger-Ellison syndrome have multiple endocrine adenomas.

Gorden, in this symposium, presented the laboratory means of diagnosing insulinoma, and he says that a blood sugar below 40 mg.% is the best criteria. Of course, insulin can be measured and in this disorder the insulin blood level is high even when the patient is fasting in contrast to normal patients. The use of Tolbutamide can be helpful in diagnosing insulinomas which causes a marked outpouring of insulin and a drop in blood sugar; there are false positives and negatives to this test. Research on insulinoma is credited with the discovery that insulin may exist in several different chemical forms; pro-insulin, a large molecule, cursor of insulin, high molecular weight, immuno reactive insulin, and normal insulin—all of which Gorden points out lead to the fact that polypeptide hormones are not homogenous but consist of several chemically related substances or more. In insulinoma, the ratio of these larger insulins to "normal" insulin in the plasma is changed thus giving a clue to the presence of disease.

Kraft has similarly reviewed the diarrhoeogenic pancreatic syndrome which has been called "pancreatic cholera" because of its resemblance to the disease cholera. The syndrome is due to a secretin like hormone according to some and others attribute it to a gastric inhibition peptide or something resembling a mixture of glucagon and pentagastrin. The symptoms include psychosis, flushing, weakness, cardiomyopathy, renal fail-

ure, diarrhea, and hypotension. The syndrome may be related to the hypovolemia and hypokalemia due to the large frequent stools.

Management of these tumors is both medical and surgical. The tumor can be excised or partially excised—or the stomach can be excised in hypergastrinemia. Some of the medical treatments are as follows. For insulin diazoide corticoids and growth hormone are antitotal; for gastrin: antacids, antisecretory drugs, and gastric irradiation; for serotonin: opiates, anticholinergics and methysergide; for ACTH: aminoglutethimide and metyrapone; and for secretin: corticoids.

Pancreatic islet tumors are relatively uncommon being found in about 1.5% of autopsies. Despite their rarity, studies of these tumors have extended greatly our knowledge of endocrinology.

ANSWER—Electrocardiogram of the Month

Diagnosis: Isolated U wave inversion I, V4-6, consistent with very early strain pattern, or anterolateral ischemia.

Discussion: Note the inverted U waves in leads I V4-6. The normal U wave has the same polarity as the T wave but only 5-50% of the T wave's amplitude. U waves are more perceptible at slow rates as they become buried in the P waves at rates above 90. U waves with their polarity apposite the polarity of the T wave are frequently seen in left ventricular diastolic overload (aortic regurgitation) and occasionally seen in systolic overload (hypertension, aortic stenosis, coarctation). Usually isolated U wave negativity is the first electrocardiographic evidence of an early strain pattern. In left ventricular problems the U waves are usually inverted in I, V5 and V6. With right ventricular problems U wave inversion can be seen in the inferior leads and V1, V2. This being seen more frequently in diastolic volume problems (i.e. ASD) than in systolic pressure problems (i.e. PS). Negative U waves may also be seen in myocardial infarction and in angina during chest pain.

The etiology of the U wave is disputed. It appears to correlate positionally on the heart with the anterior and posterior papillary muscles. Since increasing ventricular filling and stroke volume increases the voltage of the U wave and decreasing the venous return to the heart decreases the amplitude, this suggests mechanical wall stress has some influence. Electrolytes (esp. K⁺) and some drugs also affect the amplitude. The main areas of diagnostic significance of isolated U inversion remain as suggesting early LVH strain pattern or myocardial ischemia.

Recommended Reading: Lipeschkin, E. "The U Wave of the Electrocardiogram," *Modern Concepts in Cardiovascular Disease*, 38:39, 1969.

Mariott, H., *Practical Electrocardiography*, William and Wilkins, 1972.

MEDICINE IN THE



THE MONTH IN WASHINGTON

After three long years of sometimes bitter infighting, the Congress has passed legislation to provide more than \$2 billion over a three-year period for medical education assistance.

The long squabble on how many federal strings should be attached and in large part due to the activity of the American Medical Association and other groups those strings have been kept to a minimum.

Commenting on the final provisions of the conference committee action, James H. Sammons, M.D., AMA's Executive Vice President, said, "Many features which we felt were not in the best interests of medical education were dropped — and for this we are very pleased."

Dr. Sammons pointed out that the bill still contains language that will be troublesome, but emphasized that, "The end results of years of work will be a bill that will — overall — help us increase the supply of physicians and the number of physicians in primary care as well as continued support of the National Health Service Corps."

The major battle fought by the AMA, the Administration, and others defeated the prolonged efforts of some to use the so-called Health Manpower bill as a vehicle for federal dictation of curriculum, regional allocations, federal service and licensure of physicians.

As a result of the legislation's passage, medical schools are assured of a continuation of capitation and construction funds, medical students will have increased opportunities for federal scholarships and loan assistance, and the government's National Health Service Corps stands firmly entrenched as an expanding program to channel physicians into shortage areas. In addition, medical schools will be required to produce more "primary care" physicians.

The most controversial feature in the separate bills that had been approved earlier in the House and Senate had been a House provision compelling medical graduates to pay back in money or in shortage area service for the capitation aid their medical schools had received (rather than

individual scholarships or loans the students might have taken). This was not contained in the Senate bill nor in the final compromise measure worked out by the House and Senate conferees.

Only one burdensome requirement of importance remained in the bill. As a condition for capitation aid, medical schools must have in 1978 at least 35 percent of their filled first year positions in direct or affiliated residency training programs in primary care, defined as Family Medicine, General Internal Medicine and General Pediatrics. This percentage rises to 50 percent by 1980.

Rather than requiring certain percentages of medical school graduates to enter shortage area service or join the National Health Service Corps (NHSC), the new medical education bill simply puts up enough PHSC scholarship funds to assure sufficient numbers of young physicians entering the program. Authorized for such scholarships are \$75 million for the fiscal year starting this October, \$140 million next fiscal year and \$200 million for fiscal 1980. Also \$51 million over three years was authorized for special scholarships for "students who are of exceptional financial need."

The NHSC also was authorized \$174 million for three years for its operations.

For construction of ambulatory, primary care teaching facilities for physicians and dentists, the legislation authorized \$120 million for three years.

The capitation grant levels were set at \$2,000 per student for the coming fiscal year, \$2,050 for fiscal 1979, and \$2,100 the next year.

New restrictions were imposed on alien foreign medical graduates including a requirement they return to their country of origin after training. U. S. citizen graduates of foreign medical schools would be given special consideration for acceptance by American medical schools. Medical board and English proficiency tests are specified for immigrating health professionals.

The Health, Education and Welfare Depart-

ment, under the bill, will prepare sweeping data on health professionals' location, training, etc., "for the purpose of establishing a uniform health professions data reporting system."

The measure provides the new "unaffiliated" residency programs will not be eligible for federal grants and loans, but existing programs are given a "grandfather clause" exemption.

There is no language pertaining to federal re-licensure for physicians.

* * * *

Congress has sent to the White House legislation to expand medical aid for Indians.

The measure, backed by the AMA, authorizes a three-year program for health professions recruitment and preparatory scholarships for Indians, and for scholarship and extern programs to provide physicians, dentists and other health professionals who would provide health services to Indians.

The bill authorizes construction and renovation of Indian Health Service hospitals, health centers, health stations, and other facilities. It eases Medical standards for Indian Health Service facilities and makes the facilities eligible for Medicare and Medicaid reimbursements.

For the first time health service activities for Indians in urban areas would be furnished, including outreach programs, identification of Indians and their health needs, assisting Indians to use community health facilities and the direct delivery of services.

* * * *

Hospital-based blood banks have charged that the American Red Cross is threatening "a crisis in blood supply which will have an impact on health care delivery."

At issue is the Red Cross decision after 16 years to cancel its agreement with the American Association of Blood Banks to exchange blood through AABB's clearinghouse program.

The AABB, which represents most major hospital banks in the country, termed the Red Cross decision—to become effective Oct. 19—a "drastic step" that "will have an adverse effect on the nation's blood supply and will serve to fragment the blood banking system in this country."

Bernice Hemphill, AABB President, told a Washington, D. C., news conference that if the Red Cross carries out its threat, "competition for blood donors between AABB banks and Red

Cross centers will increase, and the blood programs of both organizations will be affected by the public confusion that will follow."

The blow-up pits the completely voluntary, no-credit approach to blood collection as embodied by the Red Cross against the individual responsibility of advance credit for giving philosophy of the hospital banks. And the wrangle threatens to jeopardize the careful and deliberate efforts being made by the parent American Blood Commission to bring the competing elements in blood banking together in a voluntary cooperative program before the federal government steps in.

The Red Cross was urged by the AABB to reconsider its decision or to agree to national mediation on the issue.

The AABB said it went public with its appeal and protest "not without a great deal of anguish . . . but we no longer have a choice."

* * * *

The AMA has asked Congress to drop a proposed tax provision that would authorize state and local governments to require Social Security numbers to be submitted in administration of any "general public assistance program."

"We are concerned that the term 'general public assistance program' could be defined to include such health programs as local neighborhood health clinics, drug, alcohol, or venereal disease programs, as well as the Medicaid program," said James Sammons, M.D., AMA Executive Vice President.

In a letter to Congress, Dr. Sammons said:

"It is generally recognized that any required submission of Social Security numbers as a condition for participation in the above or other health programs could inhibit public assistance recipients from seeking necessary medical care and also inhibit medical personnel from participating in such programs. Effective delivery of health care to the poor could thus be jeopardized."

He continued: "A confidential relationship between a physician and his patient regarding medical care is necessary, especially with respect to such sensitive medical conditions as venereal disease, drug use, mental illness, and abortion. The individual citizen must be assured that his medical care will be kept in strictest confidence in order to assure that degree of open and candid

discussion which is necessary for proper treatment. The current language . . . would infringe upon this right of confidentiality of persons who require public assistance in obtaining medical care."

* * * *

The Director of the National Cancer Institute, Frank J. Rauscher, Ph.D., is resigning because of low pay. Rauscher says he is unable to support five children, three of college age, on his present salary of \$37,800. He is going to the American Cancer Society to become Senior Vice President for Research at \$75,000.

Dr. Rauscher became head of the Institute in 1972 after Congress gave a major boost to cancer research under the National Cancer Act.

The legislation which expanded NCI, made the director a Presidential appointee and gave him more immediate access to the President and the Congress through the President's Cancer Panel. But the salary of the NCI director, like that of other directors at the National Institutes of Health, is frozen under civil service classification at \$37,800.

An attempt this year to increase directors' salaries to \$52,000 failed by one vote in the House Commerce Committee.

During Dr. Rauscher's tenure, funding for cancer research increased from \$377 million to \$815 million this year.

* * * *

Veteran AMA representative on Capitol Hill, James W. Foristel, retired after 25 years service with AMA's Washington Office. A familiar face to thousands of lawmakers over the years and a close friend to many, Foristel plans to keep his hand in with consultant work in the health field for several organizations including the American Association of Ophthalmology.

Foristel, a lawyer and World War II veteran, first joined the AMA Washington Office in 1949 and served as its legal and legislative advisor until 1954. He then joined the HEW Department as associate general counsel.

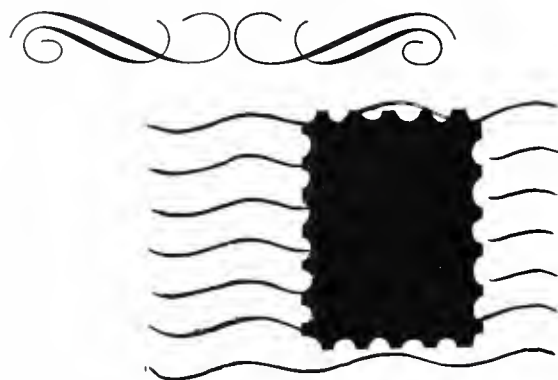
He rejoined the AMA in 1956 and served as Director, Department of Congressional Relations, to 1970 and as Assistant Director until recently.

The AMA House of Delegates, at its recent Annual Meeting in Dallas, Texas, adopted and presented to Foristel a commendation resolution

acknowledging his many years of loyal and competent service to the AMA.

The resolution said in part "his perpetual enthusiasm and individual style have made him one of the Association's most effective lobbyists;" and "his unquestioned integrity has brought credit to both the Association and the entire profession of Congressional relations — his expertise has earned him the name 'Mr. Lobbyist' from government and Congressional circles..."

Ave Atque vale!



LETTERS TO THE EDITOR

Alfred Kahn, Jr., M.D., Editor
1300 West Sixth Street
Little Rock, Arkansas 72201
Re: Letter to the Editor

Dear Sir:

I read, with great interest, the editorial on dyslexia in the *Journal of the Arkansas Medical Society*, Vol. 73, No. 4, Page 187, 188, September, 1976. I feel that the ocular emphasis in this editorial is unfounded. I feel the approach toward the child with dyslexia must be that of a team approach including medical education and social services. A joint organizational statement, which has been approved by the executive committees and councils of the American Academy of Pediatrics, the American Academy of Ophthalmology, Otolaryngology, and the American Association of Ophthalmology.

Dealing with this specific problem of dyslexia is as follows:

Problem of Learning Disabilities

The problem of learning disability has become a matter of increasing public concern, which has led to exploitation by some practitioners of the normal concern of parents for the welfare of their children. A child's inability to read with under-

standing as a result of defects in processing visual symbols, a condition which has been called dyslexia, is a major obstacle to school learning and has far-reaching social and economic implications. The significance and magnitude of the problem have generated a proliferation of diagnostic and remedial procedures, many of which imply a relationship between visual function and learning.

The eye and visual training in the treatment of dyslexia and associated learning disabilities have recently been reviewed with the following conclusions by the American Academy of Pediatrics, the American Academy of Ophthalmology and Otolaryngology, and the American Association of Ophthalmology:

1. Learning disability and dyslexia, as well as other forms of school underachievement, require a multi-disciplinary approach from medicine, education, and psychology in diagnosis and treatment. Eye care should never be instituted in isolation when a patient has a reading problem. Children with learning disabilities have the same incidence of ocular abnormalities, e.g., refractive errors and muscle imbalance, as children who are normal achievers and reading at grade level. These abnormalities should be corrected.

2. Since clues in word recognition are transmitted through the eyes to the brain, it has become common practice to attribute reading difficulties to subtle ocular abnormalities presumed to cause faulty visual perception. Studies have shown that there is no peripheral eye defect which produces dyslexia and associated learning disabilities. Eye defects do not cause reversals of letters, words, or numbers.

3. No known scientific evidence supports claims for improving the academic abilities of learning disabled or dyslexic children with treatment based solely on:

- a) visual training (muscle exercises, ocular pursuit, glasses),
- b) neurologic organizational training (laterality training, balance board, perceptual training).

Furthermore, such training has frequently resulted in unwarranted expense and has delayed proper instruction for the child.

4. Excluding correctable ocular defects, glasses have no value in the specific treatment of dyslexia

or other learning problems. In fact, unnecessarily prescribed glasses may create a false sense of security that may delay needed treatment.

5. The teaching of learning-disabled and dyslexic children is a problem of educational science. No one approach is applicable to all children. A change in any variable may result in increased motivation of the child and reduced frustration. Parents should be made aware that mental level and psychological implications are contributing factors to a child's success or failure. Ophthalmologists and other medical specialists should offer their knowledge.

This may consist of the identification of specific defects, or simply early recognition. The precursors of learning disabilities can often be detected by three years of age. Since remediation may be more effective during the early years, it is important for the physician to recognize the child with this problem and refer him to the appropriate service, if available, before he is of school age. Medical specialists may assist in bringing the child's potential to the best level, but the actual remedial educational procedures remain the responsibility of educators.

References

1. Optometric Extension Program, Duncan, Oklahoma, L. Manas.
2. Flax, N.: Visual Function in Learning Disabilities, *J. Learning Disabilities*, 1:551, Sept. 1968.
3. Bettman, J. W., Jr., Stern, E. L., Whitsell, L. J., and Gofman, H.F.: Cerebral Dominance in Developmental Dyslexia: Role of Ophthalmologist, *Arch. of Ophthalmology*, 78:722-730, Dec. 1967.
4. Norn, M. S., Rindziunsky, and Skydsgaard: Ophthalmologic and Orthoptic Examinations of Dyslectics, *Acta Ophthalmologica*, 47: 147, 1969.
5. Goldberg, H. K., and Drash, P. W.: The Disabled Reader, *J. of Pediatric Ophthalmology*, 5:11-24, 1968.
6. Goldberg, H. K.: The Ophthalmologist Looks at the Reading Problem, *AJO*, 47 (No. 1):Jan. 1959.
7. Robbins, M. P.: Test of the Doman-Delacato Rationale With Retarded Readers, *JAMA*, 202:389-393, October 30, 1967.
8. Cohen, J. J., Birch, H. G., and Taft, L. T.: Some Considerations for Evaluating the

- Doman-Delacato "Patterning" Method, Pediatrics, 45:302-314, 1970.
9. Freeman, R. D.: Controversy Over "Patterning" as a Treatment for Brain Damage in Children, JAMA, 202:385-388, Oct. 30, 1967.
 10. Committee on the Handicapped Child: Doman-Delacato Treatment of Neurologically Handicapped Children, American Academy of Pediatrics Newsletter, June 1, 1968.
 11. Goldberg, H. K.: Role of Patching in Learning, J. Pediatric Ophthalmology, 6: 123, Aug. 1969.
 12. Goldberg, H. K., and Arnott, W.: Ocular Motility in Learning Disabilities, J. of Learning Disabilities, 3:160, Mar. 1970.
 13. Rosen, C. L.: An Experimental Study of Visual Perceptual Training and Reading Achievement in First Grade, Percept Motor Skills, 22:979, 1966.
 14. Smith, H. M.: Motor Activity and Perceptual Development, J. Health-Physical-Recreation, Feb. 1968.
 15. Children's Hospital Development and Evaluation Clinic, Denver, Colorado, J. McMahon.

I am
Sincerely yours,
F. H. Roy, M.D.

* * * *

Dr. Alfred Kahn, Jr.
Editor, The Journal of the
Arkansas Medical Society
6th and Pulaski Streets
Little Rock, Arkansas

Dear Editor:

I am in receipt of a copy of a letter relative to an editorial entitled "Dyslexia," which was based upon an extensive review of medical literature, educational material and our own personal study of children having problems in reading. Dr. Hampton Roy in his letter to you stated, "I feel that the ocular emphasis in this editorial is unfounded." This is a rather remarkable statement as all ophthalmologists know we are often confronted with this problem *first*. In deference to the statement of my friend and colleague, I must call his attention to the final sentence of this brief editorial: "Treatment of the dyslexic child consists of the elimination of any physical

or emotional defect and placing the child under a good teacher of reading."

Problems of reading and learning disabilities must be those of a team effort from all members of the eye profession, pediatricians, psychiatrists, psychologists, social service workers and educators.

Sincerely,

T. Dale Alford, M.D., F.A.C.S

P.S. This brief article was a digest of a 22-page paper given before the Southern Section of U. S. Ophthalmologists and Orthoptists held at the University of Alabama Medical School. A follow-up from our own study involving Little Rock school children was included.



OBITUARY

O. PAUL SIZEMORE, M.D.

Dr. Paul Sizemore, Magnolia, died October 9, 1976, at the age of 66.

Dr. Sizemore, a native of Missouri, had practiced medicine in Magnolia for 31 years and was a graduate of the University of Arkansas Medical School. He was a past president of the Columbia County Medical Society and a former councilor of the Arkansas Medical Society, and a former chief of staff of the Magnolia Hospital. He was an elder of the first Presbyterian Church.

Dr. Sizemore is survived by his widow, Mrs. Margaret Sizemore; three sons, John Sizemore of Chevy Chase, Maryland, George Sizemore of Seattle, Washington, and Dr. William Sizemore of Salt Lake City, Utah; three daughters, Mrs. Mary Jan Marr of Irving, Texas, Mrs. Linda Cassady of Dallas, Texas, and Mrs. Ann Heintz of Shreveport, Louisiana.

WILLIAM L. SHIPPEY, M.D.

Dr. William L. Shippey, 73, who practiced medicine in Fort Smith for 34 years, died October 18, 1976.

Dr. Shippey attended the University of Oklahoma Medical School and received his Arkansas license in 1941. He was a member of the Se-

bastian County Medical Society, the Arkansas Medical Society, and the American Medical Association. Dr. Shippey was a 32nd degree Mason, and a Shriner.

Dr. Shippey is survived by his widow, Marie, one daughter, Carla Watkins of North Little Rock; two sons, William L., Jr., and Edgar E., both of San Francisco, and two grandchildren.



PERSONAL AND NEWS ITEMS

Fellows Of AAFP

Dr. Hunter M. Steadman of Eureka Springs and Dr. John R. Stotts of Little Rock, have been named Fellows of the American Academy of Family Physicians. The degrees were conferred in September in conjunction with the AAFP's annual convention and scientific assembly in Boston.

First Award For Physician Is Given

The Arkansas Chapter of the American College of Physicians established the Robert S. Abernathy Award for Outstanding Achievement in Internal Medicine to honor a living physician practicing in Arkansas or a graduate of the University of Arkansas College of Medicine who has made major contributions in the specialty.

At its annual meeting, the College presented its first award to Dr. Robert S. Abernathy, a veteran member of the UACM faculty. Dr. Abernathy resigned in May after nine years as chairman of the Internal Medicine Department. He will devote himself to teaching and research. He continues as head of the infectious disease section within the Department.

The recipient of the award must have contributed toward improving the practice of internal medicine or one of its subspecialties, improving the teaching of the specialty, or conducted research in basic or clinical internal medicine. The award is a plaque and citation for the recipient, and a permanent plaque to be placed in the College of Medicine.

Charleston Clinic Opened

The Charleston Medical Clinic opened in October and is being staffed by Dr. William J. Roberts, Dr. Charles Chalfant, Dr. William

Daniel, and Dr. T. K. Tucker. Dr. James Bledsoe joined the clinic in November.

The Charleston Medical Clinic will operate as a satellite of the Booneville Clinic with each of the four doctors rotating in Charleston for one week and then rotating nightly and weekends for after hour calls.

Dermatology Clinic At Bull Shoals

Dr. Philip R. Hardin, a native of Ranger, Texas, has opened a Dermatology Clinic at the Bull Shoals Community Hospital. Dr. Hardin is on the consulting staff of Baxter General Hospital. He is a Diplomate of the American Board of Dermatology; a member of the Society for Investigative Dermatology; and a member of the American Society for Dermatological Surgery. He is the only practicing dermatologist within a 100-mile radius.

Dr. Teeter Honored

Dr. Stanley Teeter of Russellville was honored by induction into the "Hall of Distinction" at the Arkansas Tech University's Homecoming Banquet. The Hall of Distinction honors outstanding graduates of Tech.

Dr. Cabell Honored

Dr. Ben Cabell, Fort Smith Pediatrician, was named "Doctor of the Year" by the Sebastian County Medical Assistants at their October meeting. Dr. Cabell has been in practice in Fort Smith since 1968 and he has many varied interests besides his practice. He is an avid pilot, sailing buff, collects antique automobiles, enjoys photography, and is an enthusiastic participant.

13 Arkansans Join College Of Surgeons

Thirteen Arkansas physicians were accepted as Fellows of the American College of Surgeons

in convocation ceremonies held recently in Baltimore.

The Arkansas physicians were: Dr. William F. Blankenship, Dr. Nabil K. Bissada, Dr. Robert Casali, and Dr. Kerry L. Ozment of Little Rock; Dr. William L. Norwood of DeQueen; Dr. David W. Bevans, Jr., of North Little Rock; Dr. Donald L. Patrick of Fort Smith; Dr. Thomas R. Hoberock of Harrison; Dr. Robert V. Borg, Dr. John Harry Brunner and Dr. Joe W. Chamberlain of Hot Springs; Dr. Theeradej Honghiran of Russellville; and Dr. William Charles Tompkins of Texarkana.

Dr. Schratz Whittles Away Spare Time

Dr. Bruce Schratz, North Little Rock Family Practitioner, is a very accomplished wood carver and takes his whittling seriously. He is a member of the Ozark Foothills Handicraft Guild and has participated in three of their shows, two in Mountain View and one in Heber Springs. He has designed his own version of the Raggedy Ann and Andy dolls in pins and his own version of the Bessie Doll pin. Dr. Schratz has involved his family in his hobby and they have built a workshop together. Besides whittling, he also paints and is a ham radio operator.

Dr. Maris Named To Ad Hoc Committee

Dr. Mahlon O. Maris, Harrison, has been appointed to an American Medical Association Ad Hoc Committee on Services to Young Physicians. This committee will ascertain the needs of young practicing physicians and make recommendations for the modification of existing AMA activities and the creation of new services. Dr. Maris is one of the 15 members to serve on the national level.

Dr. Steinkamp Visits

Memphis Regional Cancer Center

Dr. Ruth C. Steinkamp represented Dr. Rex Ramsay, Director of the Arkansas Health Department, at a recent NIH site visit at the Memphis Regional Cancer Center. The MRCC proposes outreach for improving patient care and for physician education in cancer. The MRCC includes a total of 80 counties in five states, including 17 in eastern Arkansas. This area encompasses the same area originally described as the Memphis Regional Medical Program and takes in those counties for which the primary medical referral area is Memphis.

Dr. Mashburn Promoted

Dr. James D. Mashburn of Fayetteville has been named Assistant Adjutant General of the Arkansas Army National Guard. He was recently promoted to the rank of Brigadier General.

Dr. Campbell Elected

Dr. Gilbert S. Campbell, Little Rock Thoracic Surgeon, has been elected President-elect of the Halstead Society. The Halstead Society is a surgical group of only seventy-five members throughout the United States.

Dr. Campbell will be the first Arkansan to head the Society.



NEW MEMBERS

WILLIAM FLETCHER HARPER, M.D.

Dr. William F. Harper, Internist from Pine Bluff, has been accepted into membership by the Jefferson County Medical Society. His office is located at 1702 West 42nd Avenue in Pine Bluff.

Dr. Harper received his M.D. degree from the University of Texas Medical Branch in Galveston in 1970 and interned at the Wilford Hall United States Air Force Medical Center. Dr. Harper served seven years active duty in the Air Force prior to opening his office on September 13, 1976. He was Chief of Medicine at the USAF Hospital at Clark Air Base and was Chief of Internal Medicine at the USAF Regional Hospital at McDill AFB, Florida.

JOHN DAVID HARDIN, M.D.

Dr. John D. Hardin is a new member of the Jefferson County Medical Society. He is a radiotherapist at the Jefferson Hospital in Pine Bluff.

Dr. Hardin received his B.S. degree from the

University of Southern Mississippi and his M.D. degree from the University of Mississippi. His internship was straight pathology from 1972 to 1973 and residency was in radiology from 1973 to 1976. He has completed the first part of his American Board of Radiology.

MAHMOOD ALI KHAN, M.D.

Dr. Mahmood Ali Khan has been accepted into membership by the Jefferson County Medical Society. Dr. Khan is associated with Drs. Mary Ellen Jenkins and Rustan Ali Malik at 1410 West 42nd in Pine Bluff.

Dr. Khan is a native of Hyderabad, India, and received his pre-medical training at the Osmania University in Hyderabad, India. He received his B.S. and M.D. degrees at the Gandhi Medical College, graduating in 1966. He was in practice in 1968 to 1972 in the United Kingdom prior to coming to the United States. He interned at the Norton Memorial Infirmary at Louisville, Kentucky, from 1972 to 1973 and his residency was spent at the University of Arkansas College of Medicine.

Dr. Khan is a member of the American Society of Anesthesiology.

JAYANT B. RANA, M.D.

The Miller County Medical Society has accepted Dr. Jayant B. Rana into membership. Dr. Rana was born in Bilimora, India. He received his medical education at the Baroda India Medical College and interned from January 1968 to December 1968. His residency was in ophthalmology from 1971 to 1974. He was in private practice in Texarkana, Texas, for five years prior to coming to Arkansas.

Dr. Rana is in private practice at 1406 College Drive, Texarkana, and he is a member of the American Society of Contemporary Ophthalmology.

LEWIS CARLTON COOK, M.D.

The Miller County Medical Society has accepted Dr. Lewis Carlton Cook into membership.

Dr. Cook was born in Louisiana and received his medical education at Tulane University. He interned at the Confederate Memorial Medical Center in Shreveport and was in residency at Tulane University. He served in the United States Air Force from August 1971, to 1973.

Dr. Cook is an ophthalmologist and is a member of the American Academy of Ophthalmology.

His office is located at 2020 College Drive, Texarkana, Texas.

JAMES EDWARD SOYARS, M.D.

Dr. James E. Soyars has been accepted into the Miller County Medical Society. He is a native of Wood, South Dakota.

Dr. Soyars attended the University of Washington where he received his B.S. degree in Pharmacy. He received M.S. and M.D. degrees from Creighton University and served his internship at Mercy Hospital in Des Moines, Iowa. His residency was at Tulane University in New Orleans. Dr. Soyars served in the Air Force from October 1965, to October 1967.

Dr. Soyars has been in practice at 2020 College Drive in Texarkana for five years. He is an ophthalmologist and is a member of the American Academy of Ophthalmologist and Otolaryngology, Texas Ophthalmology Association, and the American Ophthalmological Association.



RESOLUTIONS



WHEREAS, the members of the Pulaski County Medical Society are deeply saddened by the recent death of our colleague, R. M. Blakely, M.D., and

WHEREAS, Dr. Blakely had practiced in this area for fifty-six years, endearing himself to his countless patients, and

WHEREAS, he had served this organization in many capacities, having been its President in 1938;

BE IT THEREFORE RESOLVED:

THAT, this resolution be made a part of the permanent archives of this Society, and

THAT, Dr. Blakely's family be sent a copy of this resolution as an expression of our heartfelt sympathy, and

THAT, a copy be sent to the Journal of the

Arkansas Medical Society for publication.

By Direction of the Memorial Committee:

T. Duel Brown, M.D., Chairman

Robert Watson, M.D.

Henry Hollenberg, M.D.

APPROVED: Executive Committee

October 20, 1976

WHEREAS, the members of the Pulaski County Medical Society note with sincere sorrow the recent death of our fellow member, A. R. DeJanis, M.D., and

WHEREAS, Dr. DeJanis had practiced family medicine for more than thirty years and won the devotion of countless citizens of this community who were his patients, and

WHEREAS, his participation in the affairs of his community were most noteworthy;

BE IT THEREFORE RESOLVED:

THAT, this resolution be made a part of the permanent records of this Society, and

THAT, a copy of this resolution be forwarded to Mrs. DeJanis as an expression of sympathy, and

THAT, a copy of this resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Direction of the Memorial Committee:

T. Duel Brown, M.D., Chairman

Robert Watson, M.D.

Henry Hollenberg, M.D.

APPROVED: Executive Committee

October 20, 1976



THINGS TO COME



University Of Arkansas For Medical Sciences Continuing Education For Physicians

Tentative Schedule for January, 1977

January 21-22 — "Advanced Life Support,"

Dr. Dale Morris, Program Director

January 24-26 — "Acute Respiratory Failure,"

Dr. Charles Hiller, Program Director

For further information, call 1-800-482-9612, toll free.

Alton Ochsner Medical Foundation

The Seventh Annual Postgraduate Course in Gastroenterology, "SMALL INTESTINE AND COLON: AN UPDATE," January 20-22, 1977. Ochsner Medical Institutions, Monroe Hall. Program Director, William D. Davis, Jr., M.D.. Co-Director, Chesley Hines, Jr., M.D.

This seventh annual course in gastroenterology will present up-to-date information on advances

in the understanding of the physiology and the pathophysiology of the small intestine and the colon, as well as disease states of the bowel. Although designed primarily for the generalist, material will be considered in sufficient depth to be of interest to specialists in the fields as well.

Registration Fee — \$125.00.

"VASCULAR SURGERY — UPDATED," February 3-5, 1977. Ochsner Medical Institutions, Monroe Hall, Program Director will be John L. Ochsner, M.D.

The course is directed toward the practicing general and vascular surgeon and its purpose is to update the practicing surgeon as to the newer developments in vascular surgery. There are to be short, formal lectures and panel discussions with questions from the audience. There will also be some wet clinics to demonstrate the operative technique of certain procedures.

Registration Fee — \$125.00.

Please send all requests for information to:

Continuing Education

Alton Ochsner Medical Foundation

1516 Jefferson Highway

New Orleans, Louisiana 70121

Telephone: 504/834-7070, Extension 5831

**Fourth Annual Hair Transplant
Symposium and Workshop**

The American Society for Dermatologic Surgery, and the American Academy of Facial Plastic and Reconstructive Surgery are co-sponsoring this conference which is designed to offer an opportunity for the exchange of ideas among various disciplines and to present the latest advances in techniques on hair transplantation.

It will be held February 11 and 12, 1977, at the Stough Dermatology and Cutaneous Surgery Clinic, P.A., Doctors Park, Hot Springs. Attendance will be limited.

Multi-discipline international faculty will include dermatologists, otolaryngologists, regional and general plastic surgeons.

For further information contact D. B. Stough, III, M.D., Program Director, Doctors Park, 99 Little Pine, Hot Springs, Arkansas 71901.

**3-Day Symposium On
Common Pediatric Problems**

The Children's Hospital, National Medical Center, and George Washington University are sponsoring a three-day Symposium on Common Pediatric Problems, June 8-10, 1977. This will feature a Symposium on Hematology, Oncology and Immunology; a Symposium on Adolescence;

and a day of workshops. The guest faculty consists of Drs. Robert Baehner, Lewis Barness, Harvey Colten, Charles Dinarello, Margaret Smith, and Sheldon Wolff.

The continuing medical education program has been approved for credit by the American Medical Association and the American Academy of Family Physicians. Further information may be obtained by writing to Mrs. Susan Weiss, 13407 Brackley Terrace, Silver Springs, Maryland 20904.

**Fortieth Annual New Orleans
Graduate Medical Assembly**

The 40th Annual New Orleans Graduate Medical Assembly will be held March 28 through March 31, 1977, at the Fairmont in New Orleans. Registration fee is \$125.00 and hotel reservations should be made well in advance.

The Assembly will have seventeen distinguished speakers and there will be clinicopathologic conference, trauma symposium, scientific exhibits, lectures, tours for wives, general assembly luncheon, LSU Medical Television, and a Mississippi River Cruise aboard the S.S. Natchez. For further information write the NOGMA, Room 1538, 1430 Tulane Avenue, New Orleans, Louisiana 70112, or phone 504/525-9930. To make hotel reservations at the Fairmont phone 800-527-4727 (toll free).



ARKANSAS MEDICAL SOCIETY MEMBERSHIP ROSTER

December 1, 1976



HEADQUARTERS OFFICE:

**214 NORTH 12TH STREET
POST OFFICE BOX 1208
FORT SMITH, ARKANSAS 72902
TELEPHONE: 501 782-8218**

MEMBERSHIP ROSTER OF THE ARKANSAS MEDICAL SOCIETY 1976-77

Type of Practice	Member's Name	Address	Telephone Number
ARKANSAS COUNTY			
R	Burroughs, Clement D.	Stuttgart Memorial Hospital, Stuttgart 72160	673-3511, Ext. 227
FP	Cross, Joseph E.	P. O. Box 472, DeWitt 72042	946-1676
FP	Daniel, Noble B., III	Route 1, Box 21-D, Stuttgart 72160	673-7211
FP	Guyer, Gerald L.	Route 1, Box 21-D, Stuttgart 72160	673-7211
FP	Hestir, John M.	220 W. Gibson, DeWitt 72042	946-3637
FP	John, Milton C., Jr.	Route 1, Box 21-D, Stuttgart 72160	673-7211
GS	Ligon, Ralph E.	#75 Kings River Road, North Little Rock 72116 (res.)	NF
GS	Millar, Paul H., Jr.	Route 1, Box 21-D, Stuttgart 72160	673-7211
FP	Morgan, Jerry D.	Route 1, Box 21-D, Stuttgart 72160	673-7211
GP	McCracken, Elbert A.	509 S. Main, Stuttgart 72160	673-8571
FP	Northcutt, Carl E.	Route 1, Box 21-D, Stuttgart 72160	673-7211
GP	Pritchard, Jack L.	1022 S. Main, Stuttgart 72160	673-2331
GP	Rasco, C. W., Jr.	111 S. Jackson, DeWitt 72042	946-3156
#	Stone, Fred B.	Stuttgart	
GP	Van Duyn, Thomas S.	P. O. Box 110, Stuttgart 72160	673-7291
GP	Whitehead, R. H.	121 N. Adams, DeWitt 72042	946-4181
ASHLEY COUNTY			
GP	Bradley, William G.	315 N. Alabama, Crossett 71635	364-6478
FP	Bui, Thieu	P. O. Box 248, Wilmot 71676	473-2274
GP	Burt, Frederick N.	310 N. Alabama, Crossett 71635	364-2137
FP	Cothern, William R.	P. O. Box 577, Crossett 71635	364-6111
	Edwards, Lawrence E.	Shalimar, Florida	
	Mask, Don L.	Alexander, Alabama	
FP	Rankin, James D., Jr.	P. O. Box 232, Hamburg 71646	853-8271
FP	Ripley, C. E.	317 N. Alabama, Crossett 71635	364-5113
GS	Salb, Robert L.	113 Pine, Crossett 71635	364-2138
GP	Ton, De That	P. O. Box 248, Wilmot 71676	473-2274
FP	Toon, D. L.	310 N. Alabama, Crossett 71635	364-5762
BAXTER COUNTY			
CD	Abraham, K. Simon	Green Valley Drive, Mountain Home 72653	425-6991
FP	Arnold, Carl B.	Salem Clinic, Salem 72576	895-3281
GP	Beard, Arthur L.	126 W. 6th, Mountain Home 72653	425-3131
EM	Black, John P.	Baxter General Hospital, Mountain Home 72653	425-3141
FP	Bozeman, Jimmy G.	Highway 9 North, Salem 72576	895-3281
IM	Cheney, Maxwell G.	353 E. 8th, Mountain Home 72653	425-3125
R	DeLany, Clarence L.	Fulton County Hospital, Salem 72576	895-3124
GP	Ducker, David E.	P. O. Box 547, Salem 72576	895-3215
FP	Dunbar, James C.	617 S. Baker, Mountain Home 72653	425-2020
GP	Gotaas, Bernice E.	P. O. Box 44, Bull Shoals 72619	445-4755
FP	Grasse, A. Meryl	P. O. Box 438, Calico Rock 72519	297-3726
GP	Guenther, John F.	126 W. 6th, Mountain Home 72653	425-3131
GS	Hawkins, Michael L.	812 Baker, Mountain Home 72653	425-6988
RD	Hildebrand, Eugene	Route 3, Mountain Home 72653 (Res.)	491-5240
FP	Kelley, Lawrence A.	P. O. Box 342, Bull Shoals 72619	445-4292
FP	Kerr, Robert L.	P. O. Box 432, Mountain Home 72653	425-6971
GS	Langevin, Jack A.	P. O. Box 348, West Plains, Missouri 65775	417-256-8161
OPH	Massey, James Y.	P. O. Drawer H, Mountain Home 72653	425-6026
R	Matuga, Theodore J.	P. O. Box 210, Bull Shoals 72619	445-4292
FP	Moody, Michael N.	Family Clinic, Salem 72576	895-2541
FP	Penly, Don H.	603 W. Market St., Horseshoe Bend 72512	670-5147
PTH	Peterson, Hubert C.	Baxter General Hospital, Mountain Home 72653	425-8411
OPH	Sneed, John W., Jr.	P. O. Box H, Mountain Home 72653	425-6026
IM	Tolleson, William J.	126 W. 6th, Mountain Home 72653	425-3131
R	Tullis, Joe M.	P. O. Box 373, Mountain Home 72653	425-3141
FP	Wilson, Jack C.	353 E. 8th, Mountain Home 72653	425-3125
R	Wilson, M. Carolyn	P. O. Box 373, Mountain Home 72653	425-3141
BENTON COUNTY			
P	Ball, Eugene H.	Route 2, Box 53, Rogers 72756	636-8307
RD	Casebeer, R. L.	Route 3, South Park Rd., Rogers 72756 (Res.)	636-4812
GP	Clower, John D.	P. O. Box 737, Rogers 72756	636-2711
GP	Cohagan, Donald L.	408 N.W. "I", Bentonville 72712	273-5543
RD	Compton, Neil E.	P. O. Box 209, Bentonville 72712	273-5123
R	Cooper, Edward M.	Concordia Medical Clinic, Bella Vista 72712	855-3736
R	Davies, Dale H.	13 Britten Circle, Bella Vista 72712 (Res.)	855-9477
PTH	Denman, David A.	Rogers Memorial Hospital, Rogers 72756	636-0200
GP	Garrett, John L.	P. O. Box 369, Gravette 72736	787-5221
RD	Gunter, Caldeen D.	218 S. Wright, Siloam Springs 72761 (Res.)	524-5853
GP	Hall, Billy V.	P. O. Box 369, Gravette 72736	787-5221
PD	Harmon, Harry M.	1105 Chestnut, Rogers 72756	636-9234
GP	Hitt, Jerry L.	P. O. Box 737, Rogers 72756	636-2711
FP	Howard, Willard H.	903 N.W. 9th, Bentonville 72712	273-5551
FP	Hull, Robert R.	1301 W. Persimmon, Rogers 72756	636-7004
GP	Jennings, William E.	P. O. Box 737, Rogers 72756	636-2711
ORS	Kendrick, Carl M.	1225 W. Walnut, Rogers 72756	636-9607
R	Knapp, James R.	Rogers Memorial Hospital, Rogers 72756	636-0200, Ext. 264
IM	Miles, Richard W.	P. O. Box 737, Rogers 72756	637-2711
FP	McCollum, E. N.	P. O. Box 127, Decatur 72722	752-3233
OPH	McNair, James R.	P. O. Box 1197, Rogers 72756	636-0238
GS	Pearson, Richard N.	1223 W. Walnut St., Rogers 72756	636-5411
OPH	Pickens, James L.	P. O. Box 128, Rogers 72756	636-3220
OTO	Reese, Michael C.	1110 W. Elm, Rogers 72756	636-0110
PH	Robbins, Robert H.	122 See Street, Rogers 72756 (Res.)	636-2942
FP	Rollow, John A.	408 N.W. "I", Bentonville 72712	273-2497
GP	Ronald, Douglas C.	Concordia Medical Center, Bella Vista 72712	855-3781
U	Turley, Jan Thomas	1217 W. Walnut, Rogers 72756	636-9669
GP	Warren, Grier D.	P. O. Box 737, Rogers 72756	636-2711
FP	Webb, William F.	P. O. Box 368, Decatur 72722	752-3233
GP	White, Harry M.	P. O. Box 737, Rogers 72756	636-2711
IM	Wilson, Stewart M.	P. O. Box 737, Rogers 72756	636-2711
BOONE COUNTY			
GS	Bell, Thomas E.	P. O. Box 1116, Harrison 72601	365-6418
R	Bennett, Joe D.	651 N. Spring, Harrison 72601	365-9667

Type of Practice	Member's Name	Address	Telephone Number
P.	Butts, Donald R.	P. O. Box 1214, Harrison 72601.	365-3915
OTO	Chambers, Carlton L., III.	651 N. Spring, Harrison 72601.	365-7684
PD	Chambers, Elizabeth S.	651 N. Spring, Harrison 72601.	365-7684
FP	Daniel, Charles D.	P. O. Box E, Marshall 72650	448-3327
U	Ferguson, Noel F.	P. O. Box 1276, Harrison 72601	365-9481
GP	Fowler, Ross E.	215 W. Stephenson, Harrison 72601.	365-8651
IM	Garland, William J., Jr.	P. O. Box 1077, Harrison 72601.	365-3459
GS	Gladden, Jean C.	P. O. Box 1118 Harrison 72601.	365-8275
FP	Haller, Harold H.	P. O. Box 327, Jasper 72641	446-2203
FP	Haller, Nancy T.	P. O. Box 327, Jasper 72641	446-2203
FP	Hammon, Albert R.	P. O. Box 1076, Harrison 72601	365-5461
GS	Hoberock, Thomas R.	651 N. Spring, Harrison 72601	365-7411
TS	Hudson, William A.	P. O. Box 237, Jasper 72641	446-2203
FP	Jackson, Ulys	118 S. Pine, Harrison 72601	365-5333
FP	Kirby, Henry V.	651 N. Spring, Harrison 72601	365-5022
PTH	Kreutzer, Donald W.	Boone County Hospital, Harrison 72601	365-6141
OPH	Kuharich, Richard M.	707 N. Vine, Harrison 72601	365-9492
GP	Langston, Robert H.	520 N. Spring, Harrison 72601.	365-8286
ORS	Ledbetter, Charles A.	Erie and Spring Sts., Harrison 72601	365-8289
O8G	Mahoney, Paul L., Jr.	P. O. Box 1241, Harrison 72601.	365-7334
FP	Maris, Mahlon O.	P. O. Box 759, Harrison 72601.	365-8247
FP	McCoy, O. B.	P. O. Box 578, Harrison 72601	365-3592
RD	Owens, D. L.	P. O. Box 875, Harrison 72601.	365-3232
FP	Reese, Ronald R.	P. O. Box 759, Harrison 72601	365-8247
R	Robinson, G. Allen.	P. O. Box 728, Harrison 72601	365-2763
GP	Scroggins, Sam J.	520 N. Spring, Harrison 72601.	365-8286
O8G	Simpson, Thomas J.	651 N. Spring, Harrison 72601	365-2441
IM	Smith, Van.	P. O. Box 1077, Harrison 72601.	365-3459
R	Thomas, Leo D.	651 N. Spring, Harrison 72601	365-9667
ORS	Vowell, Don R.	Erie and Spring Sts., Harrison 72601.	365-8289
FP	Wallace, Oliver.	P. O. Drawer AA, Green Forest 72638.	438-5218
ORS	Williams, Ralph E.	302 Rice Road, Berryville 72616.	423-3338
GS	Williams, Rhys A.	P. O. Box 1118, Harrison 72601.	365-8275
FP	Wilson, Joe Bill.	520 N. Spring, Harrison 72601	365-8286

BRADLEY COUNTY

GP	Crow, Merl T.	205 E. Church, Warren 71671.	226-5811
GP	Marsh, James W.	302 N. Main, Warren 71671	226-2112
FP	Whaley, W. C.	205 E. Church, Warren 71671.	226-5811
FP	Wynne, George F.	113 W. Cypress, Warren 71671.	226-2844

CHICOT COUNTY

FP	Blackmon, Charles D.	Lake Village Clinic, Lake Village 71653.	265-5343
GS	Burge, John H.	Lake Village Clinic, Lake Village 71653	265-5343
GS	Burge, John P.	Lake Village Clinic, Lake Village 71653	265-5343
FP	Henjyoji, Howard S.	Lake Village Clinic, Lake Village 71653.	265-5343
FP	Smiley, George W.	Lake Village Clinic, Lake Village 71653	265-5343
GP	Smith, Major E.	P. O. Box 310, Dermott 71638.	538-5717
GP	Talbot, Allen G.	Lake Village Clinic, Lake Village 71653.	265-5343
GP	Thomas, H. W.	P. O. Box 250, Dermott 71638.	538-5255
GP	Weaver, William J.	P. O. Box Q, Eudora 71640.	355-4376
FP	Wilson, Thomas C.	115 E. Peddicord, Dermott 71638.	538-5253

CLARK COUNTY

GS	Anderson, P. R.	416 Main, Arkadelphia 71923.	246-2431
FP	Balay, John W.	416 Main, Arkadelphia 71923.	246-2431
GS	Blackmon, James T.	100B Pine, Arkadelphia 71923	246-6734
RD	Clark, Charles G.	110B Huddleston, Arkadelphia 71923 (Res.)	246-4493
FP	Gary, Eli	P. O. Box 475, Arkadelphia 71923	246-2491
PH	Kennedy, Jack W.	106 Evonshire St., Arkadelphia 71923 (Res.)	246-8105
FP	Luck, Herman D.	Route I, Box 25, Arkadelphia 71923	246-2471
FP	Mann, R. Jerry	416 Main, Arkadelphia 71923.	246-2431
NP	Parsons, Earl.	117 N. 11th St., Arkadelphia 71923	246-8364
FP	Peeples, George R.	305 E. Main, Gurdon 71743	353-4422
FP	Speer, Hoy B., Jr.	Route I, Box 21-D, Stuttgart 72160.	673-7211
R	Speer, Marolyn N.	1420 W. Pine, Arkadelphia 71923.	246-2441
FP	Stover, Curtis E.	204 N. 26th, Arkadelphia 71923.	246-5866
ADM	Toombs, Vernon L.	P. O. Box 70, Arkadelphia 71923	246-5851

CLEBURNE COUNTY

OPH	Baldrige, Max.	P. O. Box 431, Heber Springs 72543	362-3479
RD	Barnett, James C.	Front St., Heber Springs 72543 (Res.)	362-2786
GP	Barnett, Michael E.	4th and Spring, Heber Springs 72543	362-3143
GP	Hinkle, Richard A.	P. O. Box 128, Quitman 72131.	589-2600
GP	McClanahan, D. H.	401 W. Searcy, Heber Springs 72543	362-2414
FP	Poff, Nathan L.	401 W. Searcy, Heber Springs 72543.	362-2414
R	Scruggs, Joe B.	P. O. Box 510, Heber Springs 72543	362-3121
IM	Sharp, Jack V.	P. O. Box 70, Heber Springs 72543	362-3316
GP	Smith, W. Wayne	P. O. Box 272, Heber Springs 72543	362-2451
FP	Wells, William M.	4th and Spring, Heber Springs 72543	362-3145

COLUMBIA COUNTY

FP	Alexander, John E.	707 N. Washington, Magnolia 71753.	234-2288
PD	Baldwin, Ronald L.	110 W. North, Magnolia 71753.	234-4411
FP	Farmer, John M.	104 E. Columbia, Magnolia 71753.	234-2230
FP	Griffin, Rodney L.	123 N. Jackson, Magnolia 71753.	234-3040
R	Hunter, Robert W.	Rt. 4, 2602 Crestview, Magnolia 71753.	234-6117
GP	Jones, T. H.	P. O. Box 387, Waldo 71770.	693-5634
FP	Kelley, Charles W.	1327 N. Washington, Magnolia 71753.	234-5544
GS	McMahen, H. Scott.	P. O. Box 647, Magnolia 71753.	234-3340
FP	Pullig, Thomas A.	105 W. North, Magnolia 71753.	234-8570
GP	Ruff, John L.	104 Hospital Rd., Magnolia 71753.	234-2144
GS	Rushton, Joseph F.	219 N. Washington, Magnolia 71753	234-1168
#	Sizemore, Paul.	Magnolia	
GS	Strange, Vance M.	P. O. Box 67, Stamps 71860	533-4478
FP	Walker, Jack T.	123 N. Jackson, Magnolia 71753.	234-3040
FP	Weber, Charles H.	110 W. North Magnolia 71753.	234-4411
FP	Wilson, John H.	123 N. Jackson, Magnolia 71753.	234-3040

Type of Practice	Member's Name	Address	Telephone Number
CONWAY COUNTY			
FP	Buchanan, Thomas L.	200 S. Moose, Morrilton 72110	354-4637
FP	Evans, Clifford L.	P. O. Box 677, Morrilton 72110	354-2456
FP	Hickey, Thomas H.	1109 East Broadway, Morrilton 72110	354-4624
GP	Owens, Gastor B.	P. O. Box 536, Morrilton 72110	354-4505
IM	Siddon, William H.	P. O. Box 587, Morrilton 72110	354-5555
FP	White, Henry B.	P. O. Box 230, Morrilton 72110	354-4623
CRAIGHEAD-POINSETT COUNTY			
D	Alston, Herman D.	816 Cobb, Jonesboro 72401	932-4570
EM	Barnett, Horace C.	1301 Terrace Ct., Jonesboro 72401 (Res.)	932-7795
OBG	Basinger, James W.	505 E. Matthews, Jonesboro 72401	935-3990
RD	Bell, William K.	517 W. Jefferson, Jonesboro 72401 (Res.)	932-9113
OBG	Berry, Donald M.	P. O. Box 1478, Jonesboro 72401	935-3990
OPH	Blanton, Martin E.	P. O. Box 1268, Jonesboro 72401	932-8433
P	Blaylock, Jerry D.	505 E. Matthews, Jonesboro 72401	935-0360
U	Bogaev, Leonard R.	812 Cobb, Jonesboro 72401	932-2926
IM	Burns, Richard G.	505 E. Matthews, Jonesboro 72401	932-1198
IM	Clopton, Owen H., Jr.	505 E. Matthews, Jonesboro 72401	932-1198
HEM	Cohen, Robert S.	223 E. Jackson, Jonesboro 72401	972-0063
GP	Craig, Gus A.	920 Union, Jonesboro 72401	932-3022
ORS	Dickson, Glenn E.	505 E. Matthews, Jonesboro 72401	932-1820
OTO	Eddington, William R.	505 E. Matthews, Jonesboro 72401	935-8132
ORS	Edwards, Harvey O.	924 S. Main, Jonesboro 72401	935-9123
GS	Faris, John C.	907 Union, Jonesboro, 72401	935-8470
FP	Forestiery, A. J.	P. O. Box 106, Harrisburg 72432	578-5443
R	Garner, William L.	224 E. Matthews, Jonesboro 72401	932-7458
OTO	Gossett, Clarence E.	505 E. Matthews, Jonesboro 72401	935-8132
R	Green, William R.	224 E. Matthews, Jonesboro 72401	932-7458
IM	Guinn, Donald R.	505 E. Matthews, Jonesboro 72401	932-1198
P	Guthrie, Alastair N.	2711 S. Caraway Rd., Jonesboro 72401	932-0692
FP	Harper, T. P.	P. O. Box C, Monette 72447	486-2131
GP	Hogue, Ernest L.	505 E. Matthews, Jonesboro 72401	932-8121
R	Holland, James A.	P. O. Box 1124, Jonesboro 72401	932-7458
P	James, Frank M.	2920 McClellan Dr., Jonesboro 72401	972-4039
AN	Johnson, Larry H.	818 Cobb, Jonesboro 72401	932-4211
PD	Johnson, Roehl W.	505 E. Matthews, Jonesboro 72401	935-6012
	Jones, R. J.	Barksdale AFB, Louisiana	
GS	Keisker, H. W.	505 E. Matthews, Jonesboro 72401	932-4581
PD	Kemp, Charles E.	505 E. Matthews, Jonesboro 72401	935-6012
OBG	Kirkley, John B.	P. O. Box 1478, Jonesboro 72401	935-3990
PTH	Kroe, Donald J.	411 E. Matthews, Jonesboro 72401	932-7430
FP	Lawrence, Robert O., Jr.	417 E. Matthews, Jonesboro 72401	972-0550
GP	Ledbetter, Joseph W.	804 S. Church, Jonesboro 72401	935-5454
ORS	Mahon, Larry E.	924 S. Main, Jonesboro 72401	935-9123
AN	Mitchell, George E.	818 Cobb, Jonesboro 72401	932-4211
GP	Modelevsky, A. C.	P. O. Box 1427, Jonesboro 72401	932-0980
RD	McCurry John H.	2631 S. 12th, St. Louis, Missouri 63118	NF
OPH	McKee, Bobby E.	505 E. Matthews, Jonesboro 72401	935-6396
EM	Peeler, M. O.	224 E. Matthews, Jonesboro 72401	972-4288
P	Peirce, Charlotte T.	2920 McClellan Dr., Jonesboro 72401	972-4039
GP	Plunk, Hermie G.	5005 E. Nettleton, Jonesboro 72401	932-1181
GP	Poff, Joseph H.	118 E. Main, Trumann 72472	483-7611
GP	Poole, Grover D.	P. O. Box 10, Jonesboro 72401	932-2634
P	Price, Edwin F.	P. O. Box 5033, Jonesboro 72401	972-0290
PD	Rainwater, W. T.	505 E. Matthews, Jonesboro 72401	935-6012
FP	Raney, Bascom P.	403 E. Matthews, Jonesboro 72401	935-5529
FP	Reynolds, Roland C.	801 Osler Dr., Jonesboro 72401	932-2423
P	Richardson, William W.	2920 McClellan, Jonesboro 72401	972-4039
FP	Robinette, James M.	801 Osler Dr., Jonesboro 72401	932-2423
D	Rogers, James F.	505 E. Matthews, Jonesboro 72401	935-4755
GS	Sanders, James W.	505 E. Matthews, Jonesboro 72401	932-4875
U	Scriber, Ladd J.	812 Cobb, Jonesboro 72401	932-2926
RD	Shanlever, R. C.	1103 Wilkins, Jonesboro 72401 (Res.)	932-2450
ORS	Shanlever, William T.	924 S. Main, Jonesboro 72401	935-9123
FP	Smith, Floyd A., Jr.	415 W. Main, Trumann 72472	483-6411
GP	Smith, Vestal B.	P. O. Box 614, Marked Tree 72365	358-2811
R	Smoot, John D.	P. O. Box 934, Jonesboro 72401	886-6611
AN	Sparks, E. Barrett	818 Cobb, Jonesboro 72401	932-4211
PTH	Stainton, Robert M., Jr.	411 E. Matthews, Jonesboro 72401	932-7430
FP	Stallings, Joe H., Jr.	417 E. Matthews, Jonesboro 72401	972-0550
IM	Starnes, C. Wayne	224 E. Matthews, Jonesboro 72401	972-4288
OBG	St. Clair, John T., Jr.	505 E. Matthews, Jonesboro 72401	935-3990
RD	Stroud, Paul T.	P. O. Box 818, Jonesboro 72401 (Res.)	932-3284
GP	Swingle, Charles G.	P. O. Box 267, Marked Tree 72365	358-2036
	Taylor, G. Wayne	San Francisco, California	
FP	Thomas, James F.	Southgate Plaza, Jonesboro 72401	935-8510
GPM	Utley, Anne C.	711 Morningview, Jonesboro 72401	932-4046
OPH	Utley, Phillip M.	920 S. Main, Jonesboro 72401	932-8221
FP	Verser, Joe	P. O. Box 106, Harrisburg 72432	578-5443
PTH	Vollman, Don B.	411 E. Matthews, Jonesboro 72401	932-7430
OPH	Webb, James W.	920 S. Main, Jonesboro 72401	932-8221
U	Williams, E. Walden	812 Cobb, Jonesboro 72401	932-2926
GS	Wilson, Francis M.	505 E. Matthews, Jonesboro 72401	932-1987
PTH	Wilson, Joseph T., Jr.	411 E. Matthews, Jonesboro 72401	932-7430
FP	Winters, W. L.	801 Osler Dr., Jonesboro 72401	932-2423
GP	Wisdom, Durwood	505 E. Matthews, Jonesboro 72401	932-8121
CRAWFORD COUNTY			
FP	Darden, L. R.	P. O. Box 623, Van Buren 72956	474-2336
FP	Durmon, Beuford	1103 Chestnut, Van Buren 72956	474-2361
FP	Edds, Millard C.	1103 Chestnut, Van Buren 72956	474-2361
FP	Hopkins, Ed G.	1103 Chestnut, Van Buren 72956	474-2361
GP	Parkhurst, Yale E.	1103 Chestnut, Van Buren 72956	474-2361
GP	Shearer, F. E.	P. O. Box 458, Alma 72921	474-9539
FP	Skipper, Kenneth H.	P. O. Box 359, Van Buren 72956	474-6832
CRITENDEN COUNTY			
IM	Bernstein, Lawrence D.	P. O. Box 1705, West Memphis 72301	735-0834
FP	Deneke, Milton D.	P. O. Box 607, West Memphis 72301	735-1170
OBG	Ferguson, T. Murray	200 S. Rhodes, West Memphis 72301	735-2150

Type of Practice	Member's Name	Address	Telephone Number
O8G.....	Ford, Robert C., Jr.....	200 S. Rhodes, West Memphis 72301.....	735-2150
FP.....	Hamilton, Ralph B.....	300 S. Rhodes, West Memphis 72301.....	735-1170
GS.....	Jay, Gilbert D., III.....	200 S. Rhodes, West Memphis 72301.....	735-4612
OPH.....	Kennedy, Keith B.....	P. O. Box 489, West Memphis 72301.....	735-7680
GS.....	Lanford, H. G.....	308 S. Rhodes, West Memphis 72301.....	735-3664
FP.....	Lubin, Milton.....	200 S. Rhodes, West Memphis 72301.....	735-3919
FP.....	Miller, James L.....	300 S. Rhodes, West Memphis 72301.....	735-1170
IM.....	Peeples, Chester, W.....	302 S. Rhodes, West Memphis 72301.....	735-1973
GS.....	Piat, Robert D.....	P. O. Box 1705, West Memphis 72301.....	735-0833
GS.....	Schoettle, Glenn P.....	308 S. Rhodes, West Memphis 72301.....	735-3664
FP.....	Smith, Bedford W.....	300 S. Rhodes, West Memphis 72301.....	735-1170
R.....	Taylor, C. Herbert, Jr.....	Anchorage, Alaska	
	Utley, L. Thomas.....	P. O. Box 248, West Memphis 72301.....	735-1500, Ext. 218
	Williams, Jacob M., Jr.....	Iuka, Mississippi	
FP.....	Wright, William J.....	P. O. Box 608, Earle 72331.....	792-8956
FP.....	Young, Morris.....	P. O. Box 587, Parkin 72373.....	732-2070
CROSS COUNTY			
FP.....	Beaton, K. E.....	P. O. Box 158, Wynne 72396.....	238-2321
FP.....	Bethell, Robert D.....	P. O. Box 158, Wynne 72396.....	238-2321
FP.....	Burks, Willard G.....	P. O. Box 158, Wynne 72396.....	238-2321
GP.....	Crain, Vance J.....	P. O. Box 158, Wynne 72396.....	238-2321
GP.....	Hayes, Robert A.....	P. O. Box E, Wynne 72396.....	238-3261
FP.....	Jacobs, James R.....	P. O. Box E, Wynne 72396.....	238-3261
FP.....	Young, J. Hosea.....	P. O. Box E, Wynne 72396.....	238-3261
DALLAS COUNTY			
FP.....	Delamore, John H.....	P. O. Box 351, Fordyce 71742.....	352-7117
FP.....	Dobson, Jack T.....	P. O. Box 816, Fordyce 71742.....	352-5125
FP.....	Howard, Don G.....	P. O. Box 506, Fordyce 71742.....	352-3151
FP.....	Nutt, Hugh A.....	P. O. Box 506, Fordyce 71742.....	352-5144
GP.....	Taylor, George D.....	P. O. Box 36, Sparkman 71763.....	678-2406
DESHA COUNTY			
GP.....	Harris, Howard R.....	307 S. Elm, Dumas 71639.....	382-4425
FP.....	Hoagland, Robert A.....	145 W. Waterman, Dumas 71639.....	382-4878
FP.....	Moss, Swan B.....	P. O. Box 652, McGehee 71654.....	222-3141
FP.....	Prosser, Robert L., III.....	600 Holly, McGehee 71654.....	222-6131
FP.....	Robinson, Guy U.....	207 S. Elm, Dumas 71639.....	382-4425
GP.....	Turney, Lonnie R.....	101 S. 3rd, McGehee 71654.....	222-4044
FP.....	Young, James E.....	P. O. Box 707, McGehee 71654.....	222-6131
DREW COUNTY			
GP.....	Binns, Van C.....	203 E. Trotter, Monticello 71655.....	367-3531
FP.....	Busby, Arlee K.....	733 Doctors Dr., Monticello 71655.....	367-3246
#.....	Crane, Henry A., Jr.....	Monticello	
GP.....	Hicks, Charles E.....	232 S. Main, Monticello 71655.....	367-2473
#.....	Hyatt, C. Lewis.....	Monticello	
GS.....	Price, J. P., Jr.....	232 S. Main, Monticello 71655.....	367-2475
FP.....	Wallick, Paul A.....	P. O. Box 660, Monticello 71655.....	367-6868
FAULKNER COUNTY			
RD.....	Archer, Charles A., Jr.....	411 Western Ave., Conway 72032 (Res.).....	329-3412
RD.....	Banister, Benjamin F., Jr.....	923 Parkway, Conway 72032.....	NF
FP.....	Banister, Bob G.....	923 Parkway, Conway 72032.....	329-3824
AN.....	Beasley, Margaret D.....	P. O. Box 404, Conway 72032.....	329-8742
FP.....	Beasley, T. O.....	919 Locust St., Conway 72032.....	329-2946
ADM.....	Benafield, Robert B.....	P. O. Box 2181, Little Rock 72203.....	378-2164
GP.....	Daniel, Sam V.....	574 Locust St., Conway 72032.....	329-6111
FP.....	Doss, John R.....	919 Locust St., Conway 72032.....	329-2946
RD.....	Downs, J. H.....	P. O. Box 56, Nashville 71852 (Res.).....	845-2265
R.....	Garrison, James S.....	Conway Memorial Hospital, Conway 72032.....	329-3831
FP.....	Gordy, Fred, Jr.....	552 Locust St., Conway 72032.....	329-6881
OPH.....	Magie, Jimmie J.....	P. O. Box 1284, Conway 72032.....	327-4444
FP.....	Sessions, Leslie H.....	1300 Parkway, Conway 72032.....	329-3824
FP.....	Smith, John D.....	923 Parkway, Conway 72032.....	329-3824
GP.....	Taylor, Robert L.....	810 Parkway, Conway 72032.....	329-3815
FRANKLIN COUNTY			
GP.....	Calaway, Robert L.....	P. O. Drawer C, Mulberry 72947.....	997-3941
FP.....	Ewing, Jon R.....	604 W. Commercial, Ozark 72949.....	667-4111
FP.....	Ewing, Rebecca F.....	604 W. Commercial, Ozark 72949.....	667-4111
FP.....	Gibbons, David L.....	506 W. Commercial, Ozark 72949.....	667-2285
ADM.....	Long, C. C.....	P. O. Box 1208, Fort Smith 72902.....	782-8218
GARLAND COUNTY			
IM.....	Adams, Frank M.....	236 Central, Hot Springs 71901.....	623-8751
AN.....	Allan, David.....	600 W. Grand, Hot Springs 71901.....	525-3414 (Res.)
IM.....	Arnold, W. O.....	1002 Central Tower Bldg., Hot Springs 71901.....	624-1397
OTO.....	Atkinson, Robert H.....	303 Central Tower Bldg., Hot Springs 71901.....	623-6101
R.....	Bohnen, Loren O.....	901 W. Grand, Hot Springs 71901.....	623-6693
IM.....	Bond, John B., Jr.....	101 Whittington, Hot Springs 71901.....	321-2229
OTO.....	Borg, Robert V.....	4409 Central, Hot Springs 71901.....	624-5422
OPH.....	Bracken, Ronald J.....	505 W. Grand, Suite 201, Hot Springs 71901.....	624-4478
GS.....	Brunner, John H.....	101 Whittington, Hot Springs 71901.....	321-2229
U.....	Burrow, Thomas E.....	903 W. Grand, Hot Springs 71901.....	623-8110
GS.....	Burton, Frank M.....	101 Whittington, Hot Springs 71901.....	321-2229
GS.....	Chamberlain, Joe W.....	330 Sixth St., Hot Springs 71901.....	623-4477
GS.....	Chamberlain, Warren W.....	330 Sixth St., Hot Springs 71901.....	623-4477
IM.....	Clardy, E. K.....	P. O. Box 850, Hot Springs 71901.....	624-1281
RD.....	Daniel, R. L.....	105 Lowery, Apt. 1203, Hot Springs 71901 (Res.).....	623-9753
FP.....	Davis, James H.....	P. O. Box 315, Mount Ida 71957.....	867-2175
IM.....	Dembinski, T. Henry.....	804 1/2 Central, Hot Springs 71901.....	623-9781
OPH.....	Dodson, John W., Jr.....	505 W. Grand, Suite 305, Hot Springs 71901.....	623-4541
ORS.....	Durham, Thomas M.....	505 W. Grand, Suite 200, Hot Springs 71901.....	623-7717
GS.....	Eisele, W. Martin.....	101 Whittington, Hot Springs 71901.....	321-2229
IM.....	Fotioo, George J.....	505 Central Tower Bldg., Hot Springs 71901.....	623-5121
GS.....	French, James H.....	101 Whittington, Hot Springs 71901.....	321-2229

Type of Practice	Member's Name	Address	Telephone Number
EM	Frye, Ivan L.	9600 W. 12th, Little Rock 72205	227-2300
FP	Gardial, J. Richard	125 Greenwood, Hot Springs 71901	623-3373
FP	Gardner, James L.	125 Greenwood, Hot Springs 71901	623-0904
GS	Garner, Onyx P.	1705 Central, Hot Springs 71901	623-3521
	Goodin, Lyn A.	Wichita, Kansas	
	Goodin, Walker D.	Wichita, Kansas	
#	Goodrum, William A.	Hot Springs	
IM	Graham, Richard F.	505 W. Grand, Suite 301, Hot Springs 71901	623-4391
NS	Gupta, Surinder N.	606 Central Tower Bldg., Hot Springs 71901	321-1329
OBG	Haggard, John L.	101 Whittington, Hot Springs 71901	321-2229
OTO	Harper, Edwin L.	4409 Central, Hot Springs 71901	624-5422
RD	Hebert, Gaston A.	802 Prospect, Hot Springs 71901 (Res.)	623-7216
GS	Hill, Robert L.	905 W. Grand, Hot Springs 71901	623-9581
FP	Hollis, Thomas H.	125 Greenwood, Hot Springs 71901	623-3373
IM	Hoyt, Jerry L.	328 Quapaw, Hot Springs 71901	624-4581
D	Irwin, William G.	600-I Main, Hot Springs 71901	321-9455
GYN	Jackson, Haynes G.	P. O. Box 2067, Hot Springs 71901	623-6628
CD	Jayaraman, K. K.	110 Hawthorne, Hot Springs 71901	624-4542
PTH	Jayaraman, V. Devi.	P. O. Box 1460, Hot Springs 71901	623-2518
OPH	Johnston, Gaither C.	99 Little Pine, Doctors Park, Hot Springs 71901	624-7106
GP	Keadle, William R.	408 #8 Highway, Glenwood 71943	356-3155
RD	King, Leeman H.	610 Ramble, Hot Springs 71901 (Res.)	623-8185
AN	Klugh, Walter G., Jr.	505 W. Grand, Suite 204, Hot Springs 71901	623-9216
RD	Klugh, Walter G., Sr.	230 Pecan, Hot Springs 71901 (Res.)	623-2540
PTH	Knight, Patrick L.	P. O. Box 1460, Hot Springs 71901	623-2518
PTH	Lee, W. R.	P. O. Box 1460, Hot Springs 71901	623-2518
N	Lewis, Robert L.	P. O. Box 850, Hot Springs 71901	624-2354
GP	Lovell, Clarence R.	414 Albert Pike, Hot Springs 71901	624-1211
IM	Mashburn, William R.	99 Little Pine, Doctors Park, Hot Springs 71901	623-4453
GS	Meek, Gary N.	905 W. Grand, Hot Springs 71901	623-9581
U	Millwee, Robert H., III	903 W. Grand, Hot Springs 71901	623-8110
ORS	Murray, DuBose	505 W. Grand, Suite 200, Hot Springs 71901	623-7717
ORS	McConkie, Stuart B.	715 W. Grand, Hot Springs 71901	623-5300
GYN	McCrary, Robert F.	505 W. Grand, Suite 203, Hot Springs 71901	321-2217
PD	McFarland, Louis R.	211 Hobson, Hot Springs 71901	321-1314
FP	McMahan, J. C.	306 Albert Pike, Hot Springs 71901	624-2111
FD	Newton, Doane M.	236 Woodbine, Hot Springs 71901	321-2546
OBG	Pappas, Deno P.	101 Whittington, Hot Springs 71901	321-2229
GP	Parkerson, Carl R.	1421 Central, Hot Springs 71901	624-3341
FP	Parkerson, Cecil W.	1421 Central, Hot Springs 71901	624-3341
IM	Patterson, Ralph M.	231 Central, Hot Springs 71901	624-5567
AN	Peeples, Raymond E.	600 W. Grand, Suite 102, Hot Springs 71901	624-3868
GP	Power, Allyn R.	236 Central, Hot Springs 71901	623-3102
FP	Queen, George P.	125 Greenwood, Hot Springs 71901	623-3373
OBG	Rainwater, W. S.	101 Whittington, Hot Springs 71901	321-2229
GP	Reed, Lon E.	1315 Central, Hot Springs 71901	624-1207
IM	Rogers, I. David	125 Greenwood, Hot Springs 71901	623-3373
PD	Rosenzweig, Joseph L.	P. O. Box 245B, Hot Springs 71901	321-2546
IM	Rowland, E. Driver	110 Hawthorne, Hot Springs 71901	623-5581
GS	Sammons, Vernon E., Jr.	905 W. Grand, Hot Springs 71901	623-9581
GP	Sanders, Hallman E.	P. O. Box 1358, Hot Springs 71901	624-4411
GS	Seifert, Kenneth A.	P. O. Box 149, Hot Springs Village 71901	922-0540
#	Smith, Oliver A.	Houston, Texas	
	Smith, William K.	Hot Springs	
R	Springer, M. R., Jr.	901 W. Grand, Hot Springs 71901	623-6693
R	Springer, William Y.	901 W. Grand, Hot Springs 71901	623-6693
GP	Stough, D. B.	601 Central Tower Bldg., Hot Springs 71901	623-6921
D	Stough, D. B., III	99 Little Pine, Doctors Park, Hot Springs 71901	624-0673
OPH	Thomas, Wallace A.	P. O. Drawer D, Hot Springs 71901	624-1204
OBG	Thompson, Thomas P., Jr.	101 Whittington, Hot Springs 71901	321-2229
PD	Trieschmann, John W.	236 Woodbine Hot Springs 71901	321-2546
U	Wade, H. King, Jr.	231 Central, Hot Springs 71901	624-5641
GS	Wright, Jack	211 Hobson, Hot Springs 71901	623-6677

GRANT COUNTY

FP	Clark, Curtis B.	200 S. Rose, Sheridan 72150	942-3155
GP	Irvin, Jack M.	205 W. High, Sheridan 72150	942-3171
RD	Kelly, Miles F.	10700 New Benton Hwy., Little Rock 72209	NF
FP	Paulk, Clyde D.	200 S. Rose, Sheridan 72150	942-3155

GREENE-CLAY COUNTY

R	Baker, Augustus J.	P. O. Box 339, Paragould 72450	236-7733, Ext. 330
GP	Baker, Clark M.	115 W. Court, Paragould 72450	236-6356
PTH	Boggs, Dwight F.	905 W. Kingshighway, Paragould 72450	239-4046
FP	Bradsher, Omer E.	#1 Medical Dr., Paragould 72450	239-4011
FP	Collier, George, Jr.	130 S. 14th, Paragould 72450	236-6946
FP	Collier, Jon D.	130 S. 14th, Paragould 72450	236-6946
FP	Crow, Asa A.	#1 Medical Dr., Paragould 72450	239-4011
GS	Duckworth, Gordon L.	425 W. Jackson, Piggott 72454	598-2237
FP	Duckworth, Hillard R.	425 W. Jackson, Piggott 72454	598-2237
GP	Futrell, J. 8.	414 W. 2nd, Rector 72461	595-3332
GPM	Harper, Bland R.	P. O. Box C, Monette 72447	486-2131
ORS	Hazzard, Marion P.	#1 Medical Dr., Paragould 72450	236-6996
GS	Lawson, J. Larry	P. O. Box 6, Paragould 72450	239-4011
AN	Martin, Richard O.	P. O. Box 339, Paragould 72450	236-7733, Ext. 282
GP	Muse, Jerry L.	425 W. Jackson, Piggott 72454	598-2237
P	McGaughey, Solon	94 Hillcrest Dr., Paragould 72450 (Res.)	236-8545
FP	McKelvey, Earle D.	409 S. 5th, Paragould 72450	236-8716
FP	Page, Billie C.	#1 Medical Dr., Paragould 72450	239-4011
FP	Price, Robert E.	#1 Medical Dr., Paragould 72450	239-4011
R	Purcell, Donald I.	P. O. Box 339, Paragould 72450	239-8431
PTH	Richmond, Jack G.	P. O. Box 339, Paragould 72450	236-7733
GS	Sellers, John R.	#1 Medical Dr., Paragould 72450	239-4011
FP	Shedd, Leonus L.	1015 W. Kingshighway, Paragould 72450	239-4076
FP	Watson, Sam D.	411 S. 7th, Paragould 72450	236-8591
FP	Williams, Jacob M.	1015 W. Kingshighway, Paragould 72450	239-4077

HEMPSTEAD COUNTY

GP	Branch, James W.	426 S. Main, Hope 71801	777-4636
FP	Harris, C. Lynn	P. O. Box 550, Hope 71801	777-2131
FP	Harris, Lowell O.	P. O. Box 550, Hope 71801	777-2131

Type of Practice	Member's Name	Address	Telephone Number
FP.	Holt, Forney G.	300 E. 6th, Texarkana 75501	774-3211
GS.	Martindale, James G.	116 S. Main, Hope 71801	777-3464
GS.	Martindale, Jud B.	116 S. Main, Hope 71801	777-3464
FP.	McKenzie, Jim	P. O. Box 10, Hope 71801	777-2321
R.	Stevens, David G.	1900 S. Main, Hope 71801	777-2323
FP.	Wright, George H.	202 S. Pine, Hope 71801	777-6722
HOT SPRING COUNTY			
GP.	Brashears, Larry B.	1234 S. Main, Malvern 72104	332-5245
FP.	Cobb, Russell W.	1420 Potts, Malvern 72104	332-3112
GP.	Cole, John W.	725 E. Page, Malvern 72104	332-5641
FP.	Ellis, C. Randolph	1004 S. Main, Malvern 72104	332-6941
GP.	Kersh, Noah B.	1518 McBee, Malvern 72104	337-7533
GP.	McCray, Raymond V.	214 E. Highland, Malvern 72104	332-2704
FP.	Peters, Claude F.	1420 Potts, Malvern 72104	332-2521
GP.	Vaughan, John A.	115 E. Highland, Malvern 72104	332-2371
FP.	White, Robert H.	1004 Dyer, Malvern 72104	332-3664
FP.	Wise, John D.	1219 S. Main, Malvern 72104	332-6961
HOWARD-PIKE COUNTY			
FP.	Dildy, Edwin V.	P. O. Box 549, Nashville 71852	845-1934
GP.	Jones, William J.	P. O. Box 49, Glenwood 71943	356-3921
FP.	King, Joe D.	P. O. Box 549, Nashville 71852	845-1933
FP.	Peebles, Samuel W.	120 W. Sybert, Nashville 71852	845-4676
GP.	Smith, U. Lee.	P. O. Box 807, Nashville 71852	845-3880
FP.	Sykes, Robert R.	P. O. Box 549, Nashville 71852	845-1933
GP.	Turbeville, James O.	1124 N. Washington, Murfreesboro 7195B	285-2182
GP.	Ward, Hiram T.	P. O. Box 319, Murfreesboro 7195B	285-2491
FP.	Wesson, John H.	120 W. Sybert, Nashville 71852	845-4676
FP.	White, Phillip L.	P. O. Box 53B, Murfreesboro 7195B	285-2491
GP.	Wilmoth, Marion H.	P. O. Box 804, Nashville 71852	845-4780
INDEPENDENCE COUNTY			
FP.	Beck, Carl T.	P. O. Drawer J, Mountain View 72560	269-3834
FP.	Calaway, William H.	181 S. Broad, Batesville 72501	793-5251
FP.	Gray, W. Paul	P. O. Box 82, Batesville 72501	793-2321
#.	Hathcock, Alfred H.	Batesville	
OPH.	Jones, Edward T.	180 N. 5th, Batesville 72501	793-5257
GP.	Ketz, Wesley, J.	P. O. Box 2695, Batesville 72501	793-2371
FP.	Lytte, J. E.	181 S. Broad Street, Batesville 72501	793-5251
GS.	Monroe, Howard U.	Monroe Clinic, Mountain View 72560	269-3236
GP.	Moody, Lackey G.	P. O. Box 2335, Batesville 72501	793-6888
R.	McClain, C. M., Jr.	154 S. 3rd, Batesville 72501	793-2207
GP.	Raney, Troy	P. O. Box 83, Cave City 72521	283-5762
FP.	Slaughter, Bob L.	P. O. Box 2416, Batesville 72501	793-2540
FP.	Smith, B. G.	181 S. Broad St., Batesville 72501	793-5251
GS.	Stalker, James M.	P. O. Box 2575, Batesville 72501	793-5205
GS.	Strickland, Nathan E.	109 N. 12th, Batesville 72501	69B-1846
FP.	Tatum, Harold M.	P. O. Box 147, Melbourne 72556	368-4344
GP.	Taylor, Chaney W.	181 S. Broad, Batesville 72501	793-5251
GP.	Taylor, Charles A.	181 S. Broad, Batesville 72501	793-5251
FP.	Tucker, Charles L.	P. O. Box 38, Ash Flat 72513	994-7301
FP.	Walker, A. T.	P. O. Box 135, Thayer, Missouri 65791	417-264-7121
GP.	Wyatt, F. Q.	P. O. Box 2116, Batesville 72501	793-5251
R.	Young, Jack S., III	Newark Medical Clinic, Newark 72562	799-3721
JACKSON COUNTY			
IM.	Ashley, John D.	2nd and Laurel, Newport 72112	523-6721
GS.	Carney, J. W.	1205 McLain, Newport 72112	523-8911
IM.	Dudley, Guilford M.	1205 McLain, Newport 72112	523-8911
PD.	Dunlap, Warner B.	1205 McLain, Newport 72112	523-8911
GS.	Frankum, Jerry M., Jr.	2nd and Laurel, Newport 72112	523-6721
GP.	Green, Roger L.	P. O. Box 159, Newport 72112	523-6721
GS.	Harris, M. Haymond	1205 McLain, Newport 72112	523-8911
RD.	Jackson, Jabez F.	304 Ash, Newport 72112 (Res.)	523-8314
OBG.	Jackson, Jabez F., Jr.	1205 McLain, Newport 72112	523-8911
RD.	Norris, R. O.	1419 S. Main, Jonesboro 72401	349-5527
OPH.	Stanfield, Wayne	P. O. Box 129, Newport 72112	523-3321
RD.	Williams, Thomas E.	10 Park Place, Newport 72112 (Res.)	523-6121
GP.	Wright, John C.	1205 McLain, Newport 72112	523-8911
JEFFERSON COUNTY			
ADM.	Adams, Carl H.	P. O. Box 500, Grady 71644	479-3311
R.	Anderson, Charles W.	P. O. Box 7B63, Pine Bluff 71611	534-8651
FP.	Atnip, Gwyn	1111 West 15th, Pine Bluff 71603	535-3551
FP.	Bell, Carl H., Jr.	1602 W. 42nd, Pine Bluff 71603	535-4850
ORS.	Blackwell, Banks	1400 W. 43rd, Pine Bluff 71603	534-3122
OBG.	Bracy, Calvin M.	1704 W. 42nd, Pine Bluff 71603	536-7550
U.	Brooks, R. Teryl, Jr.	1604 W. 42nd, Pine Bluff 71603	536-775B
PD.	Bruce, Lloyene	1606 W. 42nd, Pine Bluff 71603	534-2232
FP.	Bryant, R. Frank	1112 Linden, Pine Bluff 71603	534-4352
OTO.	Buckley, John W.	1612 W. 42nd, Pine Bluff 71603	535-5719
P.	Burford, Thomas G.	Benton Services Center, Benton 72015	77B-1111
GE.	Butler, Robert C.	1624 W. 42nd, Pine Bluff 71603	536-7660
GP.	Cheek, Ben H.	1515 W. 42nd, Pine Bluff 71603	535-2890
PTH.	Clark, James F., Jr.	1515 W. 42nd, Pine Bluff 71603	535-6800
FP.	Coker, Leon R.	1710 W. 42nd, Pine Bluff 71603	535-4640
OBG.	Coker, S. Dale	1720 Doctors Dr., Pine Bluff 71603	536-49B6
IM.	Crenshaw, John	1421 Cherry, Pine Bluff 71601	535-2200
FP.	Cunningham, Thomas J.	300 W. 6th, Pine Bluff 71601	534-4723
D.	Davis, Charles M.	1416 W. 43rd, Pine Bluff 71603	535-7477
P.	Dean, Lee A.	2500 Rike Dr., Pine Bluff 71603	534-1B34
GS.	Dickins, Robert D.	1003 Cherry, Pine Bluff 71601	534-8141
R.	Fendley, Claude E.	P. O. Box 7863, Pine Bluff 71611	534-8651
OPH.	Glasscock, Robert E.	1706 Doctors Dr., Pine Bluff 71603	534-4357
PD.	Green, Horace L.	1420 W. 43rd, Pine Bluff 71603	534-6210
PTH.	Hardin, John David	1515 W. 42nd, Pine Bluff 71603	535-6800, Ext. 4754
IM.	Harper, William F.	1702 W. 42nd, Pine Bluff 71603	536-9230
PD.	Hart, J. Clyde, Jr.	1420 W. 43rd, Pine Bluff 71603	534-6210
OBG.	Hayden, Virgil L.	1706 W. 42nd, Pine Bluff 71603	535-8180
R.	Hegwood, Henri M.	P. O. Box 7B63, Pine Bluff 71611	534-8651

Type of Practice	Member's Name	Address	Telephone Number
PD	Henderson, Francis M.	1515 W. 42nd, Pine Bluff 71603	535-2890
IM	Hoover, S. H.	1610 W. 42nd, Pine Bluff 71603	536-7300
OPH	Hughes, L. Milton	1414 W. 43rd, Pine Bluff 71603	536-7738
FP	Hussain, Shafqat	1515 W. 42nd, Pine Bluff 71603	535-2890
U	Hutchison, E. L.	1/24 W. 42nd, Pine Bluff 71603	535-1562
OBG	Hyman, Carl E.	121 E. 4th, Pine Bluff 71601	534-3365
G5	Irwin, Raymond A., Jr.	1421 Cherry, Pine Bluff 71601	535-2200
P	James, William Joe	2500 Rike Dr., Pine Bluff 71603	534-1834
CD	Jenkins, Bobby J.	1/14 Doctors Dr., Pine Bluff 71603	536-3015
AN	Jenkins, Mary Ellen	1410 W. 42nd, Pine Bluff 71603	535-5522
R	Joseph, Aubrey S.	P. O. Box 7863, Pine Bluff 71611	534-8650
AN	Khan, Mahmood Ali	1410 W. 42nd, Pine Bluff 71603	535-5522
G5	King, G. Errol	817 Cherry, Pine Bluff 71601	535-1880
OPH	King, Yum Y.	4800 S. Hazel, Pine Bluff 71603	536-1897
OTO	Langston, Lloyd G.	1612 W. 42nd, Pine Bluff 71603	535-5719
FP	Lindsey, James A.	1310 Cherry, Pine Bluff 71601	535-3553
AN	Malik, Rustam A.	1410 W. 42nd, Pine Bluff 71603	535-5522
GP	Maynard, Ross E.	115 E. 5th, Suite 303, Pine Bluff 71601	534-5732
G5	Mereditth, William R.	1716 W. 42nd, Pine Bluff 71603	535-8727
ADM	Miller, Donald L.	1515 W. 42nd, Pine Bluff 71603	535-6800, Ext. 4735
R	Milligan, Monte C.	P. O. Box 7863, Pine Bluff 71611	534-8651
IM	Monroe, Sanford C.	1421 Cherry, Pine Bluff 71601	535-2200
GP	Morris, Harold J.	1030 Poplar, Pine Bluff 71601	534-0822
R	McDonald, Robert L.	P. O. Box 7863, Pine Bluff 71611	534-8651
OPH	Nixon, William R.	709 W. 6th, Pine Bluff 71601	534-2624
IM	Nuckolls, J. William	1720 Doctors Dr., Pine Bluff 71603	541-0222
RD	Payne, Virgil L.	802 W. 5th, Pine Bluff 71601 (Res.)	534-5618
CD	Pearce, Malcolm B.	1714 Doctors Dr., Pine Bluff 71603	536-3015
FP	Perry, V. Bryan	1722 W. 42nd, Pine Bluff 71603	535-4141
OBG	Pierce, J. R., Jr.	1712 W. 42nd, Pine Bluff 71603	535-3443
FP	Raney, Oliver C.	1720 W. 42nd, Pine Bluff 71603	534-5861
ORS	Reed, E. Frank	916 Cherry, Pine Bluff 71601	535-0121
PD	Rhyne, James T.	1420 W. 43rd, Pine Bluff 71603	534-6210
G5	Rittlemeyer, C. M.	1716 W. 42nd, Pine Bluff 71603	535-8727
G5	Roberson, George V.	1708 Doctors Dr., Pine Bluff 71603	535-2716
GP	Robinette, Joseph S.	1722 Doctors Dr., Pine Bluff 71603	535-2372
RD	Russell, Allen R.	12 Southern Pines Dr., Pine Bluff 71603 (Res.)	534-6481
OBG	Simmons, Calvin R.	1714 W. 42nd, Pine Bluff 71603	535-3213
N5	Simpson, P. B., Jr.	1724 Doctors Dr., Pine Bluff 71603	536-8547
G5	Smith, Robert J.	917 Cherry, Pine Bluff 71601	535-1880
G5	Stern, Howard S.	1315 Linden, Pine Bluff 71603	534-0342
G5	Sullenberger, A. G.	1726 W. 42nd, Pine Bluff 71603	534-4407
IM	Talbot, George B.	1421 Cherry, Pine Bluff 71601	535-2200
PTH	Tisdale, Alfred D., Jr.	1718 W. 42nd, Pine Bluff 71603	535-6616
PD	Townsend, Thomas E.	420 W. 43rd, Pine Bluff 71603	534-6210
IM	Tracy, C. Clyde	1421 Cherry, Pine Bluff 71601	535-2200
G5	Wilkins, Walter J., Jr.	1421 Cherry, Pine Bluff 71601	535-2200
IM	Wineland, H. L.	1710 Doctors Dr., Pine Bluff 71603	534-3561
A	Worrell, Aubrey M., Jr.	1600 W. 42nd, Pine Bluff 71603	535-8200

JOHNSON COUNTY

FP	Patterson, Jack T.	P. O. Box 668, Clarksville 72830	754-8384
FP	Pennington, Donald H.	P. O. Box 668, Clarksville 72830	754-8384
GP	Shrigley, Guy P.	P. O. Box 70, Clarksville 72830	754-2043
GP	Underwood, Clyde H.	P. O. Box 350, Clarksville 72830	754-8333
GP	West, Boyce W.	P. O. Box 220, Clarksville 72830	754-8384

LAFAYETTE COUNTY

GP	Ditsch, Craig E.	P. O. Box 276, Stamps 71860	533-4461
GP	Lee, Willie J.	P. O. Box 276, Stamps 71860	533-4461

LAWRENCE COUNTY

FP	Cruse, Edward J.	P. O. Box 116, Black Rock 72415	878-6209
RD	Dickey, A. B.	704 N.W. 3rd, Walnut Ridge 72476 (Res.)	886-5377
GP	Elders, John B.	321 S.W. 3rd, Walnut Ridge 72476	886-3162
P	Hickman, James H.	4313 W. Markham, Little Rock 72205	664-4500
*★	Hughes, Joe E.	P. O. Box 150, Walnut Ridge 72476	886-3543
IM	Joseph, Ralph F.	Highway 25 West, Walnut Ridge 72476	886-3211
FP	Lancaster, Ted S.	P. O. Box 150, Walnut Ridge 72476	886-3543
GP	Lowery, Robert D.	P. O. Box 150, Walnut Ridge 72476	886-3543
GP	Neff, Michael D.	Highway 25 West, Walnut Ridge 72476	886-3211
FP	Spades, Sebastian A.	1210 Hwy. 25 West, Walnut Ridge 72476	886-3252

LEE COUNTY

FP	Fields, Elizabeth C.	77 W. Main, Marianna 72360	295-5244
FP	Gray, Dwight W.	110 W. Chestnut, Marianna 72360	295-3131
FP	McLendon, Mac	P. O. Box 794, Marianna 72360	295-2711

LINCOLN COUNTY

GP	Freeland, James W.	P. O. Box 159, Star City 71667	628-4226
#	Petty, Richard C.	Star City	

LITTLE RIVER COUNTY

FP	Armstrong, James D.	P. O. Box 397, Ashdown 71822	898-3306
RD	Peacock, Norman W.	P. O. Box 667, Ashdown 71822	898-3353
FP	Shelton, Joe G., Jr.	P. O. Box 697, Ashdown 71822	898-3306

LOGAN COUNTY

FP	Chalfant, Charles H.	114 W. 4th, Booneville 72927	675-2455
GP	Daniel, William R.	114 W. 4th, Booneville 72927	675-2455
GP	Roberts, William J.	114 W. 4th, Booneville 72927	675-2455
GP	Smith, Charles M.	P. O. Box 286, Paris 72855	963-2191
GP	Smith, James T.	P. O. Box 286, Paris 72855	963-2191

LONOKE COUNTY

GP	Camp, Arthur W.	P. O. Box 547, Hazen 72064	255-3321
GP	Gartman, Joseph F.	P. O. Box 450, Carlisle 72024	552-7561
GP	Harris, Willie R.	P. O. Box 40, England 72046	842-2553
GP	Holmes, B. E.	305 W. Front, Lonoke 72086	676-6560
FP	Inman, Fred C., Jr.	521 N. Williams, Carlisle 72024	552-7575

Type of Practice	Member's Name	Address	Telephone Number
FP	Morrison, Doyle H.	P. O. Box 993, Cabot 72023	843-3549
CD	Schumann, Gerald M.	P. O. Drawer 1, Des Arc 72040	256-4312
FP	Washburn, C. Yulan	P. O. Box H, Cabot 72023	843-3579
MILLER COUNTY			
R	Andrews, A. E.	P. O. Box 689, Texarkana 75503	774-2121
GS	Bransford, Robert M.	P. O. Box 778, Texarkana 75501	774-3211
PD	Burnett, James W.	414 Hazel, Texarkana 75502	774-7301
PD	Burroughs, James C.	300 E. 6th, Texarkana 75501	774-3211
PTH	Chappell, Robert H.	P. O. Box 1288, Texarkana 75501	214-794-8311
OPH	Cook, Lewis C.	2020 College Dr., Texarkana 75503	214-794-3733
PD	Cowan, Noel W.	300 E. 6th, Texarkana 75501	774-3211
GS	Duncan, Donald L.	P. O. Box 778, Texarkana 75501	774-3211
P	Fisher, Donald E.	P. O. Box 1987, Texarkana 75501	NF
IM	Goesl, Andrew G.	P. O. Box 2027, Texarkana 75501	214-792-6946
PD	Hall, Jon D.	300 E. 6th, Texarkana 75501	774-3211
GYN	Harrell, William B., Jr.	317 State Line, Texarkana 75501	214-792-8231
O8G	Harrison, Jack W.	P. O. Box 778, Texarkana 75501	774-3211
ORS	Hughes, Mary W.	1001 Main, Texarkana 75501	214-792-6976
ORS	Hughes, Robert P.	300 E. 6th, Texarkana 75501	774-3211
FP	Jamison, Garland U., Jr.	610 Hazel, Texarkana 75502	774-4912
GYN	Jones, John W.	300 E. 6th, Texarkana 75501	774-3211
GP	Kemp, Karlton H.	408 Hazel, Texarkana 75502	774-5181
FP	Kittrell, James B.	1001 Main, Texarkana 75502	214-794-6107
AN	Laws, John K.	P. O. Box 1140, Texarkana 75501	774-7297
PD	Lowe, Betty A.	804 Wolfe, Little Rock 72201	376-4621, Ext. 22
PTH	Moser, Karl Dan.	315 E. 5th, Texarkana 75501	774-2121
R	McGinnis, Robert S., Sr.	P. O. Box 1409, Texarkana 75501	214-792-7151
OPH	Newton, Norris L.	P. O. Box 2830, Texarkana 75501	214-792-8541
OPH	Rana, Jayant B.	1406 College Dr., Texarkana 75503	792-3729
IM	Rodgers, Nathaniel L.	300 E. 6th, Texarkana 75501	774-3211
R	Royal, Jack L.	300 E. 6th, Texarkana 75501	774-3211
FP	Short, Harold H.	1400 College Dr., Texarkana 75503	214-793-5671
TS	Smith, A. D., Jr.	P. O. Box 1409, Texarkana 75501	214-792-7151
RD	Smith, W. Decker	2300 Laurel, Texarkana 75501 (Res.)	775-3503
OPH	Soyars, James E.	2020 College Dr., Texarkana 75503	214-794-3732
GP	Stringfellow, Jerry B.	1205 E. 35th, Texarkana 75501	773-6745
RD	Teasley, Gerald H.	1317 Rio Grande, Texarkana 75501 (Res.)	214-794-5245
PTH	Wicker, Eugene H.	315 E. 5th, Texarkana 75501	774-2121
	Wilhelm, Frieda	Dallas, Texas	
GS	Wren, Herbert B.	P. O. Box 1409, Texarkana, Tx. 75503	214-792-7151
U	Yarbrough, Charles P.	1102 Main, Texarkana 75501	214-793-5608
GS	Young, Mitchell	1406 College Dr., Texarkana 75503	214-792-8264
MISSISSIPPI COUNTY			
PH	Beasley, Joseph E.	N. 10th St., Blytheville 72315	763-7064
IM	Brock, Charles C., Jr.	527 N. 6th, Blytheville 72315	763-8118
U	Campbell, Charles E., Jr.	501 Hutson, Blytheville 72315	763-0855
FP	Cole, C. R.	519 N. 6th, Blytheville 72315	763-1554
FP	Cullom, Sumner R.	608 W. Lee, Osceola 72370	563-2608
GP	Elljott, John Q.	209 W. Ash, Blytheville 72315	763-4548
FP	Fairley, Eldon	P. O. Box 68, Osceola 72370	563-6568
FP	Fairley, Julian R.	P. O. Box 68, Osceola 72370	563-6568
R	Gatz, John F., Jr.	Osceola Memorial Hospital, Osceola 72370	563-2611
GP	Green, W. O., Jr.	P. O. Box 268, Blytheville 72315	763-6802
PTH	Hart, Sybil R.	Rt. 4, Box 327, Blytheville 72315 (Res.)	763-5111
R	Hart, Wade A.	Rt. 4, Box 327, Blytheville 72315 (Res.)	763-1617
FP	Holcomb, C. E.	511 N. 6th, Blytheville 72315	763-3922
GP	Hubener, L. L.	P. O. Box 1806, Blytheville 72315	762-2021
	Hubener, Louis F.	Gainesville, Florida	
IM	Jones, Herbert	P. O. Box 321, Blytheville 72315	763-8032
IM	Massey, Lorenzo D.	P. O. Box 388, Osceola 72370	563-6242
FP	Osborne, Merrill J.	527 N. 6th, Blytheville 72315	763-8118
FP	Pollock, George D.	608 W. Lee, Osceola 72370	563-2608
FP	Rhodes, R. F.	608 W. Lee, Osceola 72370	563-2608
GP	Rodman, Tasker N.	P. O. Box 260, Leachville 72438	539-6337
GP	Russell, James D.	527 N. 6th, Blytheville 72315	763-8118
FP	Shaneyfelt, E. A.	P. O. Box 630, Manila 72442	561-4421
GS	Sims, Hunter C., Jr.	525 N. 10th, Blytheville 72315	763-0521
FP	Smith, Ronald D.	620 W. Walnut, Blytheville 72315	763-4541
FP	Utley, F. E.	515 N. 6th, Blytheville 72315	763-4575
OPH	Webb, J. J.	520 W. Main, Blytheville 72315	762-2131
O8G	Workman, W. W.	527 N. 6th, Blytheville 72315	763-8118
MONROE COUNTY			
GP	Dalton, Marvin L.	P. O. Box 763, Brinkley 72021	734-4161
FP	David, N. C., Jr.	108 W. Ash, Brinkley 72021	734-2212
FP	Olaimay, A. N.	P. O. Box 511, Brinkley 72021	734-4137
GP	Pupsta, Benedict F.	P. O. Box 250, Clarendon 72029	747-3321
GP	Stone, Herd E.	P. O. Box A, Holly Grove 72069	462-3393
FP	Walker, Walter L.	114 S. New Orleans, Brinkley 72021	734-3242
FP	Williams, J. P., Jr.	127 S. New Orleans, Brinkley 72021	734-1331
NEVADA COUNTY			
GP	Avery, Charles D.	426 E. 6th, Prescott 71857	887-2625
GP	Crow, H. Blake	327 E. 2nd, Prescott 71857	887-3846
GP	Hairston, G. G.	P. O. Box 675, Prescott 71857	887-2211
GP	Harrell, L. J.	117 E. 2nd, Prescott 71857	887-2312
FP	Portis, Richard P.	P. O. Box 442, Prescott 71857	887-6651
FP	Russell, James T.	P. O. Box 442, Prescott 71857	887-6651
FP	Young, Michael C.	P. O. Box 442, Prescott 71857	887-6651
OUACHITA COUNTY			
U	Brown, Charles H.	415 Hospital Dr., S.W., Camden 71701	836-5013
FP	Davidson, Dennis O.	P. O. Box 67, Stephens 71764	786-5404
IM	Dedman, J. L.	415 Hospital Dr., S.W., Camden 71701	836-5013
FP	Drewrey, L. E.	430 Magnolia, Camden 71701	836-6811
AN	Ellis, Joseph L.	P. O. Box 126, Camden 71701	836-7144
GS	Fohn, Charles H.	415 Hospital Dr., S.W., Camden 71701	836-5013
GP	Guthrie, James	353 Cash Rd., Camden 71701	836-8101
FP	Hout, Judson N.	353 Cash Rd., Camden 71701	836-8101
GS	Jameson, J. B., Jr.	P. O. Box 994, Camden 71701	836-5088
FP	Kendall, J. R.	353 Cash Rd., Camden 71701	836-8101
FP	Livingston, Bill B.	416 Hospital Dr., S.W., Camden 71701	836-7367
RD	Miller, John H.	816 Clifton, N.W., Camden 71701 (Res.)	836-2549

Type of Practice	Member's Name	Address	Telephone Number
FP.....	Nunnally, Robert H.....	353 Cash Rd., Camden 71701.....	836-8101
IM.....	Ozment, Lowell V.....	353 Cash Rd., Camden 71701.....	836-8101
FP.....	Sanders, Cal R.....	353 Cash Rd., Camden 71701.....	836-8101
R.....	Thorne, A. E.....	P. O. Box 797, Camden 71701.....	836-9321
PHILLIPS COUNTY			
GP.....	Barrow, John H.....	614 Oakland Ave., Helena 72342.....	338-8622
FP.....	Bell, L. J. Patrick.....	626 Poplar, Helena 72342.....	338-8163
OPH-OTO.....	Berger, Alfred A.....	801 Perry, Helena 72342.....	338-8781
R.....	Biggs, William W.....	Helena Hospital, Helena 72342.....	338-6411
RD.....	Butts, James W.....	708 McDonough, Helena 72342 (Res.).....	338-8006
FP.....	Capes, Bernard.....	P. O. Box 2398, West Helena 72390.....	572-2621
GP.....	Ellis, William A.....	603 Porter, Helena 72342.....	338-3037
GP.....	Faulkner, H. N.....	513 Porter, Helena 72342.....	338-7401
FP.....	Kirkman, C. M. T.....	1105 Perry, Helena 72342.....	338-8712
P.....	Mateus, Francy M.....	305 Valley Dr., Helena 72342.....	338-6741
FP.....	Miller, Robert D.....	616 Elm St., Helena 72342.....	338-8531
GP.....	McCarty, C. P.....	513 Porter, Helena 72342.....	338-7401
GP.....	McDaniel, M. A.....	513 Porter, Helena 72342.....	338-7401
GP.....	Oldham, H. B.....	P. O. Box 2538, West Helena 72390.....	572-7581
GP.....	Paine, W. T.....	671 Oakland, Helena 72342.....	572-6413
GP.....	Tonymon, Daniel.....	P. O. Box 278, Marvell 72366.....	829-2721
GP.....	Wise, James E., Jr.....	P. O. Box 66, Marvell 72366.....	829-2386
POLK COUNTY			
GP.....	Austin, Calvin D.....	1210 DeQueen, Mena 71953.....	394-1441
FP.....	Fried, David D.....	Northside Shopping Center, Mena 71953.....	394-5880
GP.....	Hefner, David P.....	518 Janssen St., Mena 71953.....	394-3550
PD.....	Murphy, G. D., III.....	1210 DeQueen, Mena 71953.....	394-1441
FP.....	Redman, Pierre P.....	513 Mena St., Mena 71953.....	394-2277
GP.....	Rogers, Henry N.....	600 W. 7th, Mena 71953.....	394-3344
FP.....	Stephens, Maurice L.....	1210 DeQueen, Mena 71953.....	394-1441
GS.....	Wood, John P.....	907 Mena, Mena 71953.....	394-4221
POPE COUNTY			
GP.....	Ashcraft, Ted E.....	2524 W. Main, Russellville 72801.....	968-7170
G5.....	Bachman, David S.....	3105 W. Main Place, Russellville 72801.....	968-2345
P.....	Bell, Linda O.....	2301 W. Main, Russellville 72801.....	968-3323
U.....	Bell, Robert A.....	2301 W. Main, Russellville 72801.....	968-3323
AN.....	Birum, Patricia J.....	P. O. Box 785, Russellville 72801.....	968-5670
R.....	Burgess, James G.....	2504 W. Main, Suite C, Russellville 72801.....	968-7930
FP.....	Carter, James M.....	3105 W. Main Place, Russellville 72801.....	968-2345
G5.....	Crumpler, Joe B.....	3105 W. Main Place, Russellville 72801.....	968-2345
OPH.....	Gardner, Ellis.....	P. O. Box 400, Russellville 72801.....	968-2242
RD.....	Gavlas, Frank E.....	310 N. 2nd, Dardanelle 72834 (Res.).....	229-4225
RD.....	Heidgen, Martin F.....	3028 Painted Valley Dr., Little Rock 72212 (Res.).....	227-5107
GP.....	Henry, John A.....	3105 W. Main Place, Russellville 72801.....	968-2345
OR5.....	Honghrian, Ted.....	2504 W. Main, Suite A, Russellville 72801.....	968-3200
GS.....	Kimball, G. Howard.....	1919 W. Main, Russellville 72801.....	968-3611
R.....	King, John W.....	2504 W. Main, Suite C, Russellville 72801.....	968-7930
GP.....	King, W. Ernest, Jr.....	3105 W. Main Place, Russellville 72801.....	968-2345
ORS.....	Kolb, James M., Jr.....	305 Skyline Dr., Russellville 72801.....	968-2124
FP.....	Lane, W. H., Jr.....	625 Water St., Dover 72837.....	331-2828
OPH.....	Lovell, Richard K., Sr.....	P. O. Box 1107, Russellville 72801.....	968-7302
FP.....	Lowrey, Douglas H.....	809 W. Main, Russellville 72801.....	968-2156
OPH.....	Lyford, Joe H., Jr.....	P. O. Box 1107, Russellville 72801.....	968-7302
GP.....	Malone, George E.....	P. O. Box 187, Atkins 72823.....	641-2992
FP.....	Mauch, E. Jane.....	3105 W. Main Place, Russellville 72801.....	968-2345
RD.....	Millard, Roy I.....	1704 W. 3rd Ct., Russellville 72801 (Res.).....	968-2604
OPH.....	Mobley, Max J.....	P. O. Box 400, Russellville 72801.....	968-2242
RD.....	McNamara, William L.....	2121 Towson, Fort Smith 72901 (Res.).....	785-1441
FP.....	New, Kenneth O.....	3105 W. Main Place, Russellville 72801.....	968-2345
PTH.....	Stolz, Gerald A.....	P. O. Box 925, Russellville 72801.....	968-6781
FP.....	Teeter, Stanley D.....	3105 W. Main Place, Russellville 72801.....	968-2345
IM.....	Thurlby, W. Robert.....	3105 W. Main Place, Russellville 72801.....	968-2345
IM.....	Wilkins, Charles F., Jr.....	3105 W. Main Place, Russellville 72801.....	968-2345
GP.....	Williams, David M.....	809 W. Main, Russellville 72801.....	968-2156
OBG.....	Williams, William M., Jr.....	300 E. Roosevelt Rd., Little Rock 72206.....	372-8361
FP.....	Young, Sandra S.....	2524 W. Main, Russellville 72801.....	968-7170
PULASKI COUNTY			
AN.....	Abbott, William W.....	500 S. University, Little Rock 72205.....	664-4532
IM.....	Abraham, James H.....	10001 Lile Dr., Little Rock 72212.....	227-8000
NS.....	Adamez, John H.....	750 Medical Towers Building, Little Rock 72205.....	225-0880
IM.....	Adamson, James S.....	890 Medical Towers Building, Little Rock 72205.....	224-0110
OPH.....	Alford, T. Dale.....	5700 W. Markham, Little Rock 72205.....	664-5100
OBG.....	Allen, Durwood B.....	500 S. University, Suite 414, Little Rock 72205.....	664-4131
OBG.....	Allen, E. Stewart.....	1100 N. University, Suite 260, Little Rock 72207.....	664-9191
TS.....	Allen, John E., Jr.....	1050 Medical Towers Building, Little Rock 72205.....	227-8300
PS.....	Allen, Thomas H. "Bill".....	413 N. University, Little Rock 72205.....	664-0900
FP.....	Anderson, Leslie F.....	2 Crestview Plaza, Jacksonville 72076.....	982-4551
OM.....	Armstrong, Howard M.....	340 Doctors Park Building, Little Rock 72205.....	227-7888
PTH.....	Atkinson, William E.....	500 S. University, Suite 504, Little Rock 72205.....	663-4116
RD.....	Ault, Charles C.....	1810 W. Long 17th St., North Little Rock 72114 (Res.).....	374-0748
PD.....	Austin, L. K., Jr.....	500 S. University, Suite 302, Little Rock 72205.....	664-4044
RD.....	Autry, Daniel H.....	1900 N. Tyler, Little Rock 72207 (Res.).....	664-2332
GS.....	Baber, John C., Jr.....	500 S. University, Suite 421, Little Rock 72205.....	664-2434
P.....	Backus, Joe T.....	12115 Hinson Rd., Little Rock 72212.....	227-0680
OT.....	Bailey, H. A. Ted, Jr.....	1200 Medical Towers Building, Little Rock 72205.....	227-5050
FP.....	Baker, Charles R.....	300 E. Roosevelt Rd., Little Rock 72206.....	372-8361
PTH.....	Baker, Glen F.....	P. O. Box 5507, Brady Station, Little Rock 72205.....	664-2593
U.....	Baker, Johnson J.....	500 S. University, Suite 512, Little Rock 72205.....	664-4364
IM.....	Baldridge, John A.....	300 E. Roosevelt Rd., Little Rock 72206.....	372-8316
PD.....	Baldwin, Deane G.....	500 S. University, Little Rock 72205.....	664-4044
FP.....	Ballard, Clarence E., Jr.....	330 Doctors Park Building, Little Rock 72205.....	227-6363
OBG.....	Barclay, David L.....	4301 W. Markham, Little Rock 72201.....	661-5921
CD.....	Barlow, Brian E.....	500 S. University, Suite 618, Little Rock 72205.....	664-5860
R.....	Barnhard, Howard J.....	4301 W. Markham, Slot 598, Little Rock 72201.....	661-5683
FP.....	Barron, Edwin N., Jr.....	7915 Cantrell Rd., Little Rock 72207.....	225-9222
GS.....	Bauer, Frank M.....	500 S. University, Suite 701, Little Rock 72205.....	664-2245
R.....	Bearden, James R.....	1100 Medical Towers Building, Little Rock 72205.....	227-5240
OPH.....	Becquet, Norbert J.....	115 W. 6th, Little Rock 72201.....	375-4419
FP.....	Belknap, Melvin L.....	1801 Maple, North Little Rock 72114.....	758-1002

Type of Practice	Member's Name	Address	Telephone Number
RD	Bennett, Eaton W.	1003 Loretta Lane, Little Rock 72207 (Res.)	225-2478
CDS	Berry, Frederick B.	1060 Medical Towers Bldg., Little Rock 72205	224-3424
IM	Bethell, John P., Jr.	1801 Maple, North Little Rock 72114	758-1002
P	Betts, Charles S.	50 Westwind Dr., Rt. 6, North Little Rock 72118	771-1927
GS	Bevans, David W., Jr.	406 Pershing, North Little Rock 72114	758-1620
AN	Beverly, Nolan F.	St. Vincent Infirmary, Little Rock 72201	661-3578
D	Biondo, Raymond V.	P. O. Box 921, North Little Rock 72115	758-2588
CD	Bishop, William B.	10001 Lile Dr., Little Rock 72212	227-8000
U	Bissada, Nabil K.	4301 W. Markham, Slot 540, Little Rock 72201	661-5240
FP	Bizzell, Ross	13 Robinwood, Little Rock 72207 (Res.)	225-3666
U	Black, Hal R., Jr.	200 Doctors Park Building, Little Rock 72205	225-9755
GP	Black, H. Thurston	123 N. Van Buren, Little Rock 72205	666-0142
FP	Black, Millard W.	705 N. Ash, Little Rock 72205	663-5413
GE	Blackshear, Jack L., Jr.	650 Medical Towers Bldg., Little Rock 72205	227-8074
#	Blakely, Rupert M.	Little Rock	
ORS	Blankenship, William F.	405 N. University, Little Rock 72205	664-1500
N	Boellner, Samuel W.	300 Medical Towers Building, Little Rock 72205	227-4750
CD	Boger, James E.	690 Medical Towers Building, Little Rock 72205	227-7596
NS	Boop, Warren C., Jr.	4301 W. Markham, Slot 507, Little Rock 72201	661-5270
ADM	Bost, Roger B.	4301 W. Markham, Slot 599, Little Rock 72201	661-5260
ORS	Bowker, John H.	4301 W. Markham, Little Rock 72201	661-5251
NM	Boyd, Charles M.	4301 W. Markham, Little Rock 72201	661-5760
P	Boyle, Ronald H.	12115 Hinson Road, Little Rock 72212	227-0680
U	Bradburn, Curry B., Jr.	200 Doctors Park Building, Little Rock 72205	225-9755
R	Brenner, George H., Jr.	1100 Medical Towers Building, Little Rock 72205	227-2771
PD	Briggs, Barney P.	500 S. University, Little Rock 72205	664-4117
PD	Briggs, Dale D.	500 S. University, Little Rock 72205	664-0804
IM	Brinkley, Roy A.	100 Doctors Park Building, Little Rock 72205	227-6350
OT	Brizzolara, A. J.	500 S. University, Little Rock 72205	664-4381
P	Broach, R. Fred	12115 Hinson Rd., Little Rock 72212	227-0680
RD	Brown, Martha M.	2014 Boulevard, Little Rock 72204 (Res.)	663-7697
U	Brown, T. Duell	1120 Marshall, Suite S16, Little Rock 72202	375-3376
GE	Browning, Donald G.	409 N. University, Little Rock 72205	664-6980
ADM	Bruce, Thomas A.	4301 W. Markham, Little Rock 72201	661-5350
GS	Buchanan, F. R.	500 S. University, Suite 405, Little Rock 72205	664-4324
PD	Buchanan, Gilbert A.	500 S. University, Little Rock 72205	664-4117
GS	Buchman, Joseph A.	500 S. University, Suite 508, Little Rock 72205	664-9116
CD	Bullock, Robert T.	4301 W. Markham, Little Rock 72201	661-5883
AN	Bumpas, Joe H.	St. Vincent Infirmary, Little Rock 72201	661-3578
PTH	Burger, Robert A.	9600 W. 12th, Little Rock 72205	227-2888
P	Busby, John V.	12115 Hinson Rd., Little Rock 72212	227-0680
AN	Byrd, Lucas M., Jr.	36 Lakeshore Dr., Little Rock 72204	565-6046
OPH	Calcote, Robert A.	2500 McCain Place, Suite 215, North Little Rock 72116	771-1166
GS	Caldwell, Fred T., Jr.	4301 W. Markham, Little Rock 72201	661-6173
FP	Calhoon, J. Dale	P. O. Box 805, Jacksonville 72076	982-4551
R	Calhoun, Joseph D.	500 S. University, Little Rock 72205	664-3914
TS	Campbell, Gilbert S.	4301 W. Markham, Little Rock 72201	661-6177
R	Campbell, James W.	500 S. University, Suite 101, Little Rock 72205	664-3914
A	Caplinger, Kelsy J.	P. O. Box 5675, Little Rock 72215	227-5210
P	Carnahan, Robert G.	4313 W. Markham, Little Rock 72205	664-4500
FP	Carson, Layne E.	300 E. Roosevelt Rd., Little Rock 72206	372-8361, Ext. 411
RD	Cazort, Alan G.	5117 Edgewood, Little Rock 72207 (Res.)	663-3623
ORS	Chakales, Harold H.	405 N. University, Little Rock 72205	664-1500
OPH	Chandler, Billy M.	406 Pershing, North Little Rock 72114	758-1651
RD	Chappell, Ewin S.	400 N. University, Little Rock 72205	663-4747
FP	Cheairs, David B.	330 Doctors Park Building, Little Rock 72205	227-6363
RD	Choate, Hoyt	1100 Kavanaugh, Little Rock 72205 (Res.)	663-4362
U	Christeson, William W.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
ORS	Christian, John D.	1100 N. University, Suite 30, Little Rock 72207	664-7710
FP	Chudy, Amail	1801 Maple, North Little Rock 72114	758-1002
FP	Church, B. L.	321 Maple, North Little Rock 72114	374-7796
OBG	Church, Marion M.	410 Pershing, North Little Rock 72114	758-1022
PD	Clardy, William F.	4301 W. Markham, Little Rock 72201	661-5991
AN	Clark, Richard B.	4301 W. Markham, Little Rock 72201	661-5000
OPH	Clifton, Cliff	516 Scott, Little Rock 72201	374-6338
FP	Cobb, Jock S.	North Hills Family Clinic, Sherwood 72116	835-6800
R	Cockrill, Howard, Jr.	500 S. University, Little Rock 72205	664-3914
OTO	Colclasure, Joe B.	1200 Medical Towers Building, Little Rock 72205	227-5050
OPH	Cook, Raymond C.	601 Scott, Little Rock 72201	375-8273
GS	Cooper, W. G.	500 S. University, Little Rock 72205	666-0149
OBG	Cornell, Paul J.	500 S. University, Little Rock 72205	664-2277
FP	Cornett, James K.	5326 W. Markham, Little Rock 72205	664-6603
OPH	Cosgrove, K. W., Jr.	430 Medical Towers Building, Little Rock 72205	224-0400
CRS	Craig, Marion S.	500 S. University, Suite 307, Little Rock 72205	666-0106
OBG	Crews, J. Travis	500 S. University, Suite R15, Little Rock 72205	664-8505
OPH	Cross, J. B.	500 S. University, Suite 113, Little Rock 72205	666-0126
CDS	Crow, R. Lewis	400 Medical Towers Building, Little Rock 72205	277-9434
IM	Cullen, Philin T.	500 S. University, Little Rock 72205	664-4171
R	Dalrymple, Glenn V.	1100 Medical Towers Building, Little Rock 72205	227-5240
FP	Darwin, William G.	4924 Geyer Springs Rd., Little Rock 72209	562-1463
GS	Dean, Gilbert O., Sr.	403 Donaghey Building, Little Rock 72201	375-5543
R	Deed, Eleanor P.	4301 W. Markham, Little Rock 72201	661-5740
OPH	Deer, Philip J., Jr.	401 Scott, Little Rock 72201	375-8273
#	DeJanis, Aurelius R.	North Little Rock	
ADM	Dennis, James L.	4301 W. Markham, Little Rock 72201	663-3482
NS	Dickins, Robert D., Jr.	750 Medical Towers Building, Little Rock 72205	225-0880
PTH	Dilday, Thomas F.	P. O. Box 5507, Brady Station, Little Rock 72205	664-2593
IM	Dildy, Hal R.	500 S. University, Suite 321, Little Rock 72205	664-8111
FP	Dillard, Daniel C.	3500 S. University, Little Rock 72204	562-4838
R	Diner, Wilma C.	4301 W. Markham, Little Rock 72201	661-5740
R	Dodd, Doyne, Jr.	1100 Medical Towers Building, Little Rock 72205	227-5240
OBG	Dodde, Eva F.	4815 W. Markham, Little Rock 72205	661-2242
ORS	Dodson, C. Frank, Jr.	P. O. Box 5270, Little Rock 72205	664-7600
ORS	Dornenburg, Peter R.	500 South University, Suite 103, Little Rock 72205	664-1222
P	Douglas, Warren M.	12115 Hinson Rd., Little Rock 72212	227-0680
GS	Downs, John W.	500 S. University, Little Rock 72205	666-5977
U	Downs, Ralph A.	500 S. University, Little Rock 72205	664-1762
PDC	Dunagan, William T.	4301 W. Markham, Little Rock 72201	661-5991
FP	Durham, James W.	P. O. Box 805, Jacksonville 72076	982-4551
PH	Easley, Edgar J.	4815 W. Markham, Little Rock 72205	661-2123
ORS	Faster, Rex M.	401 N. University, Little Rock 72205	666-0144
P	Frkari, Emile P.	4313 W. Markham, Little Rock 72205	664-4500, Ext. 208
FP	Fillis, Jeffrey W.	1000 Medical Towers Building, Little Rock 72205	227-8180
GP	Evans, Gilbert C.	4942 W. Markham, Little Rock 72205	664-4127
GP	Farmer, Joseph F.	9501 Rodney Parham Rd., #12, Little Rock 72207	225-2594
FP	Farris, Guy R.	6213 Lee, Little Rock 72205	664-2115
#	Fein, Norman N.	Little Rock	
IM	Fendley, Jack T.	2500 McCain Place, Suite 219, North Little Rock 72116	771-0300

Type of Practice	Member's Name	Address	Telephone Number
FP	Fewell, Ronald D.	P. O. Box 459, Jacksonville 72076.	982-2141
GS	Felder, Charles R.	406 Pershing, North Little Rock 72114	758-1620
R	Fincher, Robert L.	1100 Medical Towers Building, Little Rock 72205	227-5240
U	Finkbeiner, Alex E.	4301 W. Markham, Little Rock 72201	661-5240
PD	Fiser, Robert H., Jr.	4301 W. Markham, Little Rock 72201	661-5906
ADM	Fitzgibbon, Carney, Jr.	410 S. Martin, Little Rock 72205 (Res.)	666-8861
FP	Flack, James V., Jr.	424 N. University, Little Rock 72205	664-4810
NS	Flanigan, Stevenson	4301 W. Markham, Little Rock 72201	661-5270
NS	Flanigin, Herman F.	4301 W. Markham, Slot 507, Little Rock 72201	661-5270
F	Fletcher, Elizabeth D.	4313 W. Markham, Little Rock 72205	664-4500
NS	Fletcher, Thomas M.	500 S. University, Suite 207, Little Rock 72205	664-3021
OBG	Floyd, Bill G.	310 Doctors Park Building, Little Rock 72205	227-7555
FP	Fortson, Wayne E.	10121 N. Rodney Parham, Little Rock 72207	224-2525
FP	Foster, Julian L.	3500 S. University, Little Rock 72204	562-4838
U	Fraiser, L. P.	200 Doctors Park Building, Little Rock 72205	225-9755
OPH	Fraunfelder, F. T.	4301 W. Markham, Little Rock 72201	661-5150
U	Fulmer, H. Kay	1414 Donaghey Building, Little Rock 72201	374-1649
OPH	Fulmer, John M.	5410 W. Markham, Little Rock 72205	664-3142
GP	Fulton, William L.	513 Main, North Little Rock 72114	375-2433
N	Galbraith, Robert C.	300 Medical Towers Building, Little Rock 72205	227-4750
OIO	Gay, Ellery C., Jr.	1200 Medical Towers Building, Little Rock 72205	227-5050
N	Gibson, Gordon L.	300 Medical Towers Building, Little Rock 72205	227-4750
NS	Giles, Wilbur M.	750 Medical Towers Building, Little Rock 72205	225-0880
GYN	Gillespie, A. Tharp	500 S. University, Little Rock 72205	664-9555
PD	Glenn, Robert E.	516 W. Pershing, North Little Rock 72114	758-1530
AN	Glenn, Wayne B.	500 S. University, Suite 220, Little Rock 72205	664-4532
END	Glover, Lawson E., Jr.	10001 Lile Drive, Little Rock 72112	227-8000
R	Glover, William C.	1100 Medical Towers Building, Little Rock 72205	227-5402
F	Good, Henry H.	Rt. 6, 50 Westwind Dr., North Little Rock 72118	771-1187
A	Gordon, Vida H.	9501 N. Rodney Parham, Little Rock 72205	227-8545
PD	Gosser, Bob L.	516 Pershing, North Little Rock 72114	758-1530
GS	Graham, G. Grimsley	990 Medical Towers Building, Little Rock 72205	227-9080
IM	Graupner, Kathryn I.	VA Hospital, North Little Rock 72114	372-8361
R	Gray, Edwin F.	11901 Fairway Dr., Little Rock 72207	661-3671
IM	Greutter, John E.	1014 Donaghey Building, Little Rock 72201	372-6139
ORS	Grimes, H. Austin	P. O. Box 5270, Little Rock 72205	664-7600
GS	Growdon, James H.	500 S. University, Little Rock 72205	664-4146
FP	Gustavus, John L.	2003 Fendley, North Little Rock 72114	758-9350
GYN	Hagler, James L.	500 S. University, Suite 400, Little Rock 72205	664-5330
IM	Hall, Alastair D.	500 S. University, Little Rock 72205	664-0027
OPH	Hankins, Edwin, III	500 S. University, Little Rock 72205	666-0311
AN	Harger, C. Harold	1150 Medical Towers Building, Little Rock 72205	227-7590
IM	Harper, Ernest H.	400 Pershing, North Little Rock 72114	227-8000
F	Harrendorf, Cagle	500 S. University, Suite 320, Little Rock 72205	663-6346
R	Harris, Donald R.	P. O. Box 7509, Little Rock 72207	664-8573
IM	Harris, Michael R.	10001 Lile Dr., Little Rock 72112	227-8000
P	Harris, T. Stuart	12115 Hinson Rd., Little Rock 72212	227-0680
R	Harris, William T.	500 S. University, Suite 101, Little Rock 72205	664-3914
F	Harrison, A. Vale	930 Medical Towers Building, Little Rock 72205	225-7433
FP	Harrison, Roy E.	9824 Chicot Rd., Little Rock 72209	562-8600
PTH	Harville, William E.	9600 W. 12th, Little Rock 72205	227-2888
F	Hawley, Harold B.	500 S. University, Little Rock 72205	664-9029
GS	Hayden, William F.	500 S. University, Little Rock 72205	664-2434
PS	Hayes, Harry, Jr.	500 S. University, Little Rock 72205	666-2811
R	Haynes, W. Ducote	500 S. University, Suite 101, Little Rock 72205	664-3914
U	Headstream, James W.	500 S. University, Little Rock 72205	664-4365
P	Hearnberger, Henry G., Jr.	3515 W. Markham, Little Rock 72201	664-4500
FP	Hedges, Harold H.	424 N. University, Little Rock 72205	664-4810
A	Hefley, Bill F.	P. O. Box 5675, Little Rock 72205	227-5210
P	Henker, Fred O.	4301 W. Markham, Little Rock 72201	661-5900
GYN	Henry, Charles R.	500 S. University, Little Rock 72205	664-4191
OPH	Henry, Forrest, Jr.	516 Scott, Little Rock 72201	374-6338
N	Henry, G. Morrison	300 Medical Towers Building, Little Rock 72205	227-4750
PD	Henry, Robert L.	500 S. University, Suite 302, Little Rock 72205	664-4044
IM	Herron, Jerry M.	890 Medical Towers Building, Little Rock 72205	224-0110
AN	Hickey, Joseph P.	1150 Medical Towers Building, Little Rock 72205	664-2496
FP	Hodges, William B.	1800 Maple, North Little Rock 72114	758-1450
R	Holder, John C.	4301 W. Markham, Little Rock 72201	661-5740
GS	Hollenberg, Henry G.	500 S. University, Little Rock 72205	664-4747
P	Hollis, Nicholas T.	P. O. Box 4042, Little Rock 72204	664-3926
FP	Holmes, Harlan C.	1160 Medical Towers Building, Little Rock 72205	225-6123
GS	Holt, L. Gordon	5326 W. Markham, Little Rock 72205	666-9442
R	Holton, Jerry C.	500 S. University, Suite 101, Little Rock 72205	664-3914
FP	Honeycutt, Thomas D.	4124 W. 11th, Little Rock 72204	664-4389
D	Honeycutt, W. Mage	500 S. University, Little Rock 72205	664-4161
PH	Hotchkiss, Robert L.	4815 W. Markham, Little Rock 72205	661-2209
P	Howard, John G., Jr.	790 Medical Towers Building, Little Rock 72205	227-6370
N	Howell, Coburn S., Jr.	300 Medical Towers Building, Little Rock 72205	227-4750
ORS	Hundley, John M.	412 Cross, Little Rock 72201	375-5338
ORS	Hutson, Harold G.	110 Doctors Park Bldg., Little Rock 72205	227-4150
ADM	Jackson, George W.	4313 W. Markham, Little Rock 72205	664-4500, Ext. 401
FP	Jackson, M. A.	1304 Wright Ave., Little Rock 72206	374-7940
D	Jansen, G. Thomas	500 S. University, Little Rock 72205	664-4161
PTH	Johnson, B. Richard	9600 W. 12th, Little Rock 72205	227-2888
IM	Johnson, Henry D.	500 S. University, Little Rock 72205	664-4171
FP	Johnson, J. Albert	P. O. Box 747, Jacksonville 72076	982-4525
ORS	Johnson, Philip H.	P. O. Box 5270, Little Rock 72205	664-7600
A	Johnston, Thomas G.	P. O. Drawer A, Hillcrest Station, Little Rock 72205	664-3904
PD	Jones, Jerry G.	500 S. University, Suite 214, Little Rock 72205	664-0804
ORS	Jones, Kenneth G.	P. O. Box 5270, Little Rock 72205	666-9491
GS	Jones, Robert D.	500 S. University, Little Rock 72205	664-4747
D	Jones, William N.	500 S. University, Little Rock 72205	664-0418
N	Jordan, William K.	P. O. Box 7545, Little Rock 72205	663-8371
NS	Jouett, W. Ray	750 Medical Towers Building, Little Rock 72205	275-0980
R	Joyce, John W.	1100 Medical Towers Building, Little Rock 72205	227-2771
RD	Junkin, Ruth H.	Route 3, Box 367-D, Little Rock 72211 (Res.)	821-3276
FP	Kagy, John K.	10121 N. Rodney Parham, Little Rock 72207	224-2525
IM	Kahn, Alfred, Jr.	1300 W. 6th, Little Rock 72201	374-5588
PTH	Kalderon, Albert E.	4301 W. Markham, Little Rock 72201	661-5171
PM	Keeler, Keith C.	12th and Marshall, Little Rock 72201	227-3532
D	Keeran, Michael G.	500 S. University, Little Rock 72205	661-4161
FP	Kennedy, Charles H.	3115 JFK Boulevard, North Little Rock 72116	753-9464
PD	Kennedy, H. Frazier	500 S. University, Little Rock 72205	664-4117
GS	Kilbury, Merlin J., Jr.	950 Medical Towers Building, Little Rock 72205	227-6840
A	Kittler, Fred J.	P. O. Box 5675, Little Rock 72205	227-5210
CD	Kizzier, Jim C.	10001 Lile Dr., Little Rock 72112	227-8000
P	Koehler, Thomas R.	4313 W. Markham, Little Rock 72205	664-4500

Type of Practice	Member's Name	Address	Telephone Number
AN	Kolb, Agnes C.	1150 Medical Towers Building, Little Rock 72205	227-7590
P	Kolb, W. Payton	230 Medical Towers Building, Little Rock 72205	225-0887
P	Kozberg, Oscar	4313 W. Markham, Little Rock 72205	664-4500, Ext. 404
GYN	Kreth, Kay M.	417 N. University, Little Rock 72205	663-9441
GS	Kumpuris, Frank G.	415 N. University, Little Rock 72205	664-1521
OBG	Kwee, James T. Y.	310 Doctors Park Building, Little Rock 72205	227-7555
OTO	Kyser, James F.	900 Medical Towers Building, Little Rock 72205	227-8501
R	Lane, John W.	1100 Medical Towers Building, Little Rock 72205	227-5240
R	Langston, Harold D.	C.A.R.T.I., Markham & University, Little Rock 72205	664-8573
FP	Laurenzana, Donald A.	3423 Pike Ave., North Little Rock 72118	753-3661
RD	Lawson, Mason G.	200 Ridgeway, Little Rock 72205 (Res.)	663-4834
AN	Lawson, Noel W.	4301 W. Markham, Little Rock 72201	661-6114
A	Lee, J. Fred	P. O. Drawer A, Hillcrest Station, Little Rock 72205	664-3904
FP	Leonard, Garnett J.	3115 JFK Boulevard, North Little Rock 72116	753-9484
ORS	Lester, Joe K.	1518 Main, North Little Rock 72114	375-0102
IM	Levy, Jerome S.	500 S. University, Little Rock 72205	664-4181
CD	Lewis, W. Sexton	700 Medical Towers Building, Little Rock 72205	227-4434
R	Lile, Henry A.	1100 Medical Towers Building, Little Rock 72205	227-5240
GS	Lincoln, Ben M.	5326 W. Markham, Little Rock 72205	664-6705
U	Logan, Charles W.	500 S. University, Little Rock 72205	664-4364
ORS	Logue, Richard M.	601 N. University, Little Rock 72205	666-0144
N	Lucy, Dennis D., Jr.	4301 W. Markham, Little Rock 72201	661-5134
GS	Ludwig, Frank R.	406 Pershing, North Little Rock 72114	758-1620
GS	Lyons, Virgle E., Jr.	500 S. University, Suite 421, Little Rock 72205	664-2434
FP	Mallory, George L., Jr.	4511 Lynch Dr., North Little Rock 72117	945-9171
IM	Malott, Jerry D.	670 Medical Towers Building, Little Rock 72205	224-2424
PTH	Markland, Gary S.	9600 W. 12th, Little Rock 72205	227-2888
GP	Marvin, Horace N., Jr.	8824 Chicot Rd., Little Rock 72209	562-8600
PUD	Mason, William L.	500 S. University, Suite B17, Little Rock 72205	661-9393
HEM	Massey, C. Garnett	1120 Medical Towers Building, Little Rock 72205	227-6770
A	Matthews, Joe W.	P. O. Box 5675, Little Rock 72205	227-5210
P	Matthews, Robert R.	4301 W. Markham, Slot 588, Little Rock 72201	661-5903
AN	Means, Paul N.	1150 Medical Towers Building, Little Rock 72205	227-7590
N	Miles, David A.	500 S. University, Suite 613, Little Rock 72205	664-3018
ORS	Millard, I. Leighton	P. O. Box 5270, Little Rock 72205	664-7600
NEP	Miller, C. Lindsey	350 Medical Towers Building, Little Rock 72205	224-2141
FP	Miller, Forrest B., Jr.	3500 S. University, Little Rock 72204	562-4838
IM	Miller, Raymond P., Sr.	5918 Lee, Little Rock 72205	664-2500
OTO	Milner, E. L.	500 S. University, Suite 208, Little Rock 72205	664-4318
ADM	Mitchell, George K.	P. O. Box 2181, Little Rock 72203	378-2133
D	Moore, Burton A.	500 S. University, Suite 501, Little Rock 72205	664-4161
NS	Moore, Jim J.	500 S. University, Suite B12, Little Rock 72205	664-4560
U	Moore, J. Malcolm	500 S. University, Suite 512, Little Rock 72205	664-4364
FP	Moore, Rex N.	P. O. Box 459, Jacksonville 72076	982-2141
IM	Moore, Robert B.	5918 Lee, Little Rock 72205	664-2500
OBG	Moran, Frank E.	410 Pershing, North Little Rock 72114	758-1022
IM	Morris, Woodbridge E.	5326 W. Markham, #13, Little Rock 72205	664-2111
R	Morrison, James R.	500 S. University, Little Rock 72205	664-3914
ORS	Morrissey, Raymond T.	804 Wolfe, Little Rock 72202	376-4621
ORS	Mulholland, James S.	500 S. University, Suite 102, Little Rock 72205	664-1222
GP	Murphy, James E.	1800 Maple, North Little Rock 72114	758-1440
P	Murphy, Randolph	4313 W. Markham, Little Rock 72205	664-4500
R	McAdoo, Hosea W., Jr.	1100 Medical Towers Building, Little Rock 72205	227-5240
OBG	McCaskill, Melvin R.	500 S. University, Little Rock 72205	664-4131
FP	McClain, Monroe D.	VA Hospital, North Little Rock 72114	372-8361, Ext. 7591
OBG	McClintock, Everett M.	P. O. Box 5761, Little Rock 72205	664-0480
PTH	McConnell, John D.	P. O. Box 5507, Brady Station, Little Rock 72205	444-2593
CDS	McCracken, John D.	Medical Towers Bldg., Little Rock 72205	227-8180
FP	McCrary, George A.	P. O. Box 805, Jacksonville 72076	982-4551
FP	McGowan, Robert J., Jr.	424 N. University, Little Rock 72205	664-4810
OTO	McGrew, Robert N.	1200 Medical Towers Building, Little Rock 72205	227-5050
OBG	McKelvey, K. David	500 S. University, Suite 414, Little Rock 72205	664-8490
ORS	McKenzie, Charles N.	802 N. University, Little Rock 72205	666-0251
OBG	McKnight, C. Allen	800 Medical Towers Building, Little Rock 72205	227-5885
IM	McMillan, James A.	470 Medical Towers Building, Little Rock 72205	224-2424
GP	McMillin, Lamar	1311 Louisiana, Little Rock 72202	378-0770
FP	Napper, George S.	513 Main, North Little Rock 72114	375-2433
ORS	Nasca, Richard J.	1100 N. University, Suite 30, Little Rock 72207	664-7710
R	Nelson, Alvah J., III	500 S. University, Little Rock 72205	664-3914
ORS	Nelson, Carl L., Jr.	4301 W. Markham, Little Rock 72201	661-5252
R	Newbern, David H.	500 S. University, Little Rock 72205	664-3914
RD	Nisbett, James M.	517 E. 7th, Little Rock 72202 (Res.)	375-2252
ORS	Nixon, Ewing M.	110 Doctors Park Building, Little Rock 72205	227-4150
R	Norton, Joseph A.	8570 Cantrell Rd., Little Rock 72207	661-3671
FP	Ogden, Mahlon D.	4601 Woodlawn, Little Rock 72205	664-0769
P	Oglesby, Walter R.	324 Pershing, North Little Rock 72114	753-5180
IM	O'Neal, Walter H.	100 Doctors Park Building, Little Rock 72205	227-6350
PTH	Orr, William S., Jr.	St. Vincent Infirmary, Little Rock 72201	661-3371
GS	Ozment, Kerry L.	1000 Medical Towers Building, Little Rock 72205	227-8180
PTH	Packmore, Dalton E.	St. Vincent Infirmary, Little Rock 72201	661-3371
ADM	Padberg, Frank T.	55 E. Erie St., Chicago, Illinois 60611	312-664-4050
OT	Pappas, James J.	1200 Medical Towers Building, Little Rock 72205	227-5050
OPH	Parker, J. Mayne	500 S. University, Suite 113, Little Rock 72205	666-9632
GS	Parnell, Clifton L., III	Little Rock Air Force Base Hospital Jacksonville 72076	988-6193
PD	Payne, William F.	500 S. University, Suite 214, Little Rock 72205	664-0804
PTH	Pehrson, Nils C.	P. O. Box 5507, Brady Station, Little Rock 72205	664-2593
CHP	Peters, John E.	4301 W. Markham, Little Rock 72201	661-5800
OPH	Peterson, Gussur J.	4301 W. Markham, Little Rock 72201	661-5151
OPH	Phillips, Bert L.	1403 Main, North Little Rock 72114	376-2840
GS	Phipps, Woodrow E.	P. O. Box 13, North Little Rock 72115	374-4821
CD	Pickens, William S.	500 S. University, Little Rock 72205	664-9040
GS	Pike, John D.	500 S. University, Little Rock 72205	664-4321
AN	Pollard, A. E.	500 S. University, Suite 220, Little Rock 72205	664-4533
R	Pool, Chalmers S.	VA Hospital, North Little Rock 72114	372-8361, Ext. 627
PS	Pope, Norton A.	850 Medical Towers Building, Little Rock 72205	227-6464
GE	Power, Robert C.	409 N. University, Little Rock 72205	664-6980
CD	Price, Ben O.	500 S. University, Little Rock 72205	664-2089
IM	Pringos, Andrew A.	102 National Old Line Building, Little Rock 72205	375-3231
RD	Proctor, Clark B.	63 Sherrill Heights, Little Rock 72202 (Res.)	663-5269
FP	Pruitt, Willard H.	1700 W. 13th St., Little Rock 72202	661-6300
FP	Purdy, Harold D.	6924 Geyer Springs Rd., Little Rock 72209	562-1463
IM	Pyle, Hoyte R., Jr.	5918 Lee, Little Rock 72205	664-2500
PH	Quittner, Howard	New Orleans, Louisiana	
PH	Ramsay, Rex C.	4815 W. Markham, Little Rock 72205	661-2111
FP	Raney, Donald M.	P. O. Box 459, Jacksonville 72076	982-9451
D	Raque, Carl J.	500 S. University, Little Rock 72205	664-4161

Type of Practice	Member's Name	Address	Telephone Number
IM	Rasch, James R.	10001 Lile Dr., Little Rock 72112	227-8000
TS	Read, Raymond C.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
RD	Reaves, B. James	4 Edgehill Rd., Little Rock 72207 (Res.)	663-1570
NS	Redding, David L.	750 Medical Towers Building, Little Rock 72205	225-0880
U	Redman, John F.	4301 W. Markham, Little Rock 72201	661-5240
OBG	Reed, Ewing C., Jr.	300 Doctors Park Building, Little Rock 72205	227-6377
P	Reese, William G.	4301 W. Markham, Slot 506, Little Rock 72201	661-5266
R	Regnier, George G.	500 S. University, Little Rock 72205	664-3914
R	Rhinehart, William J.	500 S. University, Suite 101, Little Rock 72205	664-3914
GS	Richardson, Robert E.	500 S. University, Little Rock 72205	664-4321
#	Richmond, Samuel V.	Little Rock	
GP	Riddle, John F., Jr.	8824 Chicot Rd., Little Rock 72209	562-8600
FP	Riegler, Nicholas W., Jr.	1024 Scott, Little Rock 72202	375-3326
GS	Riggs, Orval E.	1300 N. Hughes, Little Rock 72207 (Res.)	666-7314
FP	Riley, William H.	3500 S. University, Little Rock 72204	562-4838
CHP	Ringdahl, Irving C.	4301 W. Markham, Little Rock 72201	664-5810
FP	Ritchie, Elmer J.	1401 Main, North Little Rock 72114	372-5253
OPH	Roberson, Michael C.	623 Woodlane, Little Rock 72201	374-6491
IM	Robertson, Fred T.	500 S. University, Suite 716, Little Rock 72205	664-8784
IM	Robins, Rowland R.	VA Hospital, North Little Rock 72114	372-8361, Ext. 609
OBG	Rodgers, C. Dudley	500 S. University, Little Rock 72205	664-4131
FP	Rodgers, Charles H.	3500 S. University, Little Rock 72204	562-4838
RD	Rodgers, Clyde D.	5223 Hawthorne Rd., Little Rock 72207 (Res.)	663-7502
GYN	Roman-Lopez, Juan J.	500 S. University, Little Rock 72205	664-4191
ORS	Rooney, Thomas P.	501 W. 25th, North Little Rock 72114	758-2046
RD	Rosenbaum, Carl A.	Route 1, Box 274, Scott 72142 (Res.)	961-9228
ORS	Ross, Ashley S.	500 S. University, Suite 103, Little Rock 72205	664-1222
GYN	Ross, Robert W.	417 N. University, Little Rock 72205	664-8200
HEM	Ross, S. William	10001 Lile Dr., Little Rock 72112	227-8000
PTH	Roth, Sanford I.	4301 W. Markham, Little Rock 72201	661-5170
RD	Rother, Frances C.	Guatemala City, Guatemala	
OTO	Rounsaville, Harry L.	500 S. University, Suite 206, Little Rock 72205	664-4381
OPH	Roy, F. Hampton	970 Medical Towers Building, Little Rock 72205	227-6980
PTH	Rozzell, Allen R.	500 S. University, Suite 504, Little Rock 72205	663-4116
R	Rubin, Sanford A.	4301 W. Markham, Little Rock 72201	661-5740
OTO	Ruggles, Dwayne L.	520 W. 26th, North Little Rock 72114	758-6560
ORS	Runyan, W. A.	110 Doctors Park Building, Little Rock 72205	227-4150
ADM	Saltzman, Ben N.	4301 W. Markham, Slot 590, Little Rock 72201	661-5371
TS	Satterfield, John V.	500 S. University, Little Rock 72205	664-6050
P	Schneider, Mildred F.	VA Hospital, North Little Rock 72114	372-8361, Ext. 593
ORS	Schranz, James L.	1100 N. University, Suite 47, Little Rock 72207	664-9446
FP	Schratz, Bruce E.	1801 Maple, North Little Rock 72114	758-1002
OPH	Schroeder, George T.	5700 W. Markham, Little Rock 72205	664-5100
IM	Schultz, John C.	10001 Lile Dr., Little Rock 72112	227-8000
GS	Schwander, Howard	320 Doctors Park Building, Little Rock 72205	227-7200
OPH	Schwarz, W. J.	405 N. University, Little Rock 72205	664-5354
ORS	Selakovich, W. G.	500 S. University, Suite 408, Little Rock 72205	666-2824
P	Shannon, Robert F.	4301 W. Markham, Little Rock 72201	661-5266
#	Shorey, Winston K.	Little Rock	
ORS	Shuffield, H. Elvin	110 Doctors Park Building, Little Rock 72205	227-4151
OBG	Simmons, Orman W.	310 Doctors Park Building, Little Rock 72205	227-7555
IM	Simpson, N. Henry	441 Donaghey Building, Little Rock 72201	375-2801
P	Sims, James M.	324 Pershing, North Little Rock 72114	753-5180
PD	Sims, Neil H.	4301 W. Markham, Little Rock 72201	661-5000
GS	Sipes, Frank M.	403 Donaghey Building, Little Rock 72201	375-5543
R	Slayden John E.	4301 W. Markham, Little Rock 72201	661-5760
AN	Sloan, Fay M.	1150 Medical Towers Building, Little Rock 72205	227-7590
GYN	Sloan, James M.	500 S. University, Suite 413, Little Rock 72205	664-2277
GE	Smart, Douglas F.	409 N. University, Little Rock 72205	664-6960
P	Smith, Aubrey C.	12115 Hinson Rd., Little Rock 72112	227-0680
FP	Smith, Huie H.	4007 Lakeview Rd., North Little Rock 72116 (Res.)	753-1336
OPH	Smith, James L.	623 Woodlane, Little Rock 72201	374-6491
OPH	Smith, Joe E.	7107 W. 12th, Little Rock 72204	666-8627
FP	Smith, John McCollough	4000 Woodlawn, Little Rock 72205	666-6570
OTO	Smith, John W.	1415 W. 6th, Little Rock 72201	372-0036
GYN	Smith, Mose, III	5326 W. Markham, Little Rock 72205	664-1527
R	Smith, Phillip L.	4301 W. Markham, Little Rock 72201	661-5740
A	Smith, Purcell, Jr.	P. O. Box 5675, Little Rock 72205	227-5210
GE	Smith, Thomas J.	409 N. University, Little Rock 72205	664-6980
PD	Smith, Thomas W.	500 S. University, Suite 200, Little Rock 72205	664-4117
OTO	Smith, Tom	330 Medical Towers Building, Little Rock 72205	227-4863
RD	Snodgrass, William A., Jr.	3850 B Rue Maison, Mobile, Alabama 36608 (Res.)	205-342-4845
ORS	Sorrells, R. Barry	P. O. Box 5270, Little Rock 72205	664-7600
RD	Spitzberg, Irving J.	307 N. Cedar, Little Rock 72205 (Res.)	663-6877
GP	Springer, Worthie R., Jr.	1624 Maryland, Little Rock 72202	374-2635
PUD	Squire, Arthur E., Jr.	10001 Lile Dr., Little Rock 72112	227-8000
GS	Stainton, Robert M.	500 S. University, Little Rock 72205	664-4175
IM	Stanley, Joe P.	Pike Plaza Center, North Little Rock 72114	758-9823
#	Stathakis, John A.	Little Rock	
ORS	Steele, William L.	1100 N. University, Suite 30, Little Rock 72207	664-7710
PH	Steinkamp, Ruth C.	4815 W. Markham, Little Rock 72205	661-2235
P	Stephens, Wanda J.	1090 Medical Towers Building, Little Rock 72205	225-9750
TS	Stewart, Bill D.	415 N. University, Little Rock 72205	664-1521
FP	Stotts, John R.	5905 "R" St., Little Rock 72207	663-9415
CD	Stout, Kimber M.	690 Medical Towers Building, Little Rock 72205	227-7596
FP	Strauss, Alvin W., Jr.	1026 Donaghey Building, Little Rock 72201	372-1828
IM	Strauss, Mark A.	1026 Donaghey Building, Little Rock 72201	372-1828
PD	Stroope, George F.	516 Pershing, North Little Rock 72114	758-1530
PS	Stuckey, James G.	500 S. University, Suite 601, Little Rock 72205	664-4383
OTO	Suen, James Y.	4301 W. Markham, Little Rock 72201	661-5140
U	Suliman, J. Samir	518 W. 26th, North Little Rock 72114	758-6111
P	Sundermann, Richard H.	4301 W. Markham, Slot 568, Little Rock 72201	661-5900
P	Sutton, Lewis R.	12115 Hinson Rd., Little Rock 72212	227-0680
PH	Swindoll, Bryant S.	4815 W. Markham, Little Rock 72205	661-2124
OBG	Talley, H. Aubry	500 South University, Suite 414, Little Rock 72205	664-4191
IM	Taylor, Eugene H.	10001 Lile Dr., Little Rock 72112	227-8000
PD	Teeter, John A.	5804 W. Markham, Little Rock 72205	664-1767
IM	Texter, E. Clinton	4301 W. Markham, Little Rock 72201	661-5177
OPH	Thomas, A. Henry	500 S. University, Little Rock 72205	664-8445
ORS	Thomas, Jerry L.	500 S. University, Little Rock 72205	664-1222
GS	Thomas, Peter O.	1310 Cantrell Rd., Little Rock 72201	374-5703
CD	Thompson, A. J.	500 S. University, Little Rock 72205	664-5860
GS	Thompson, Bernard W.	300 E. Roosevelt Rd., Little Rock 72206	372-8361
AN	Thompson, Dola S.	4301 W. Markham, Little Rock 72201	661-6114
ORS	Thompson, Lawrence L.	1310 Cantrell Rd., Little Rock 72201	375-5381
P	Thompson, Robert M.	819 University Tower Building, Little Rock 72204	664-2444

Type of Practice	Member's Name	Address	Telephone Number
ORS	Thompson, Samuel B.	1100 N. University, Suite 30, Little Rock 72207	664-7710
ADM	Thorn, G. Max	St. Vincent Infirmary, Little Rock 72201	661-3154
FP	Tilley, Stephen	5905 "R" St., Little Rock 72205	663-9415
R	Tirman, Robert M.	300 E. Roosevelt Rd., Little Rock 72206	3/2-8361 Ext. 383
IM	Tolbert, Louis E., Jr.	500 S. University, Little Rock 72205	666-0136
ADM	Towbin, Eugene J.	300 E. Roosevelt Rd., Little Rock 72206	3/2-8361 Ext. 291
AN	Tseng, Jyi-Ming	1150 Medical Towers Building, Little Rock 72205	227-7590
FP	Tudor, John M., Jr.	4301 W. Markham, Little Rock 72201	661-5874
AN	Valentine, Robert G.	201 W. 18th St., North Little Rock 72114	758-4806
AN	Vaughtner, W. Roger	3 Ken Circle, Little Rock 72207	664-3789
FP	Wade, William I.	424 N. University, Little Rock 72205	664-4810
IM	Wagoner, Jack	5918 Lee, Little Rock 72205	664-2500
#	Wallace, Deane D.	Little Rock	
OPH	Wallace, Thomas R.	4301 W. Markham, Little Rock 72201	661-5000
RD	Wallis, Charles	5909 Country Club, Little Rock 72207 (Res.)	663-2132
GS	Walt, James R.	500 S. University, Suite 600, Little Rock 72205	664-4146
AN	Wang, Jerry S. Y.	1150 Medical Towers Building, Little Rock 72205	227-7590
AN	Ward, Joseph P.	1150 Medical Towers Building, Little Rock 72205	227-7590
FP	Ward, Mildred E.	4301 W. Markham, Slot 611, Little Rock 72201	661-5672
PD	Wartord, Lloyd R.	500 S. University, Suite 302, Little Rock 72205	664-4044
P	Wartord, Walton R.	VA Hospital, North Little Rock 72114	372-8361, Ext. 691
GP	Wassell, John R.	VA Hospital, North Little Rock 72114	372-8361
OPH	Watkins, John G.	230 Doctors Park Building, Little Rock 72205	227-6797
NS	Watson, Robert	750 Medical Towers Building, Little Rock 72205	225-0880
ORS	Weber, Edward R.	4301 W. Markham, Little Rock 72201	661-5251
FP	Weber, James R.	P. O. Box 188, Jacksonville 72076	982-2108
IM	Wellons, James A., Jr.	890 Medical Towers Building, Little Rock 72205	224-0110
IM	Wells, Travis L.	216 Donaghey Building, Little Rock 72201	375-7121
GS	Wenger, Carl E.	330 Doctors Park Building, Little Rock 72205	227-6363
GS	Westbrook, Kent C.	4301 W. Markham, Little Rock 72201	661-6175
P	Westerfield, Frank M., Jr.	230 Medical Towers Building, Little Rock 72205	225-0777
FP	White, Oba B.	908 High Street, Little Rock 72202	374-3609
P	Whitehead, R. H., Jr.	VA Hospital, North Little Rock 72114	372-8361, Ext. 636
RD	Wilbur, E. Lloyd	3 Wingate Dr., Little Rock 72205 (Res.)	225-1252
GP	Wilkes, Elbert H.	5322 W. Markham, Suite 10, Little Rock 72205	663-4114
TS	Williams, C. David	500 S. University, Suite 315, Little Rock 72205	664-5720
TS	Williams, G. Doayne	4301 W. Markham, Little Rock 72201	661-6175
AN	Wilson, George E., Jr.	500 S. University, Little Rock 72205	664-4532
CD	Wilson, James W. D.	500 S. University, Suite 316, Little Rock 72205	664-9040
ORS	Wilson, John L.	601 N. University, Little Rock 72205	666-0144
OPH	Wilson, R. Sloan	500 S. University, Suite 519, Little Rock 72205	664-1104
IM	Wilson, T. Ben	7800 McCain Blvd., Suite 219, North Little Rock 72116	771-0300
IM	Winn, Charles R.	240 Doctors Park Building, Little Rock 72205	227-6659
GYN	Wood, Gary P.	500 S. University, Suite 614, Little Rock 72205	664-6127
FP	Wortham, Thomas H.	P. O. Box 459, Jacksonville 72076	982-2141
END	Wynn, James O.	1301 W. Markham, Little Rock 72201	661-5000
PTH	Young, Douglas E.	9600 W. 12th, Little Rock 72205	227-2888
U	Young, Jerry M.	406 Pershing, North Little Rock 72114	758-1310
P	Young, William O.	500 S. University, Suite 215, Little Rock 72205	664-8440
D	Zell, Lawrence M.	937 Donaghey Building, Little Rock 72201	374-SIS8

RANDOLPH COUNTY

FP	Baltz, Albert L.	110 W. Broadway, Pocahontas 72455	892-3111
FP	Baltz, M. A.	110 W. Broadway, Pocahontas 72455	892-3111
FP	Barre, Hal S.	P. O. Box 585, Pocahontas 72455	892-3371
FP	DeClerk, Thomas B.	204 Thomasville, Pocahontas 72455	892-3344
FP	Scott, William W.	P. O. Box 585, Pocahontas 72455	892-3371
GP	Smith, Norman K.	107 Van Bibber, Pocahontas 72455	892-3389
GS	Wyllie, James J.	308 W. Broadway, Pocahontas 72455	892-5100

SALINE COUNTY

GP	Ashby, John W.	302 W. South St., Benton 72015	778-4511
R	Ashby, Robert M.	Saline Memorial Hospital, Benton 72015	776-0611
GS	Baber, Quin M., Jr.	105 McNeil, Benton 72015	778-7435
	Barbour, Victor H.	San Antonio, Texas	
FP	Bethel, James C.	300 E. Roosevelt Road, Little Rock 72206	372-8361, Ext. 300
FP	Callaway, James R.	Benton Services Center, Benton 72015	778-1111
ORS	Cash, Ralph D.	105 McNeil, Benton 72015	778-1388
PM	Cornwell, Samuel L.	Route 3, Box 225, Benton 72015	371-1906
OBG	Council, R. A. (Tony), Jr.	910 N. East, Benton 72015	778-0426
ORS	Duncan, J. Shelby	105 McNeil, Benton 72015	778-1388
FP	Hogue, F. Paul	P. O. Box 307, Benton 72015	778-4511
GP	Izard, Ralph	P. O. Box AA, Bryant 72022	847-0289
FP	Jones, Curtis W., Jr.	223 S. Market, Benton 72015	778-2722
FP	Jones, Curtis W., Sr.	225 S. Market, Benton 72015	778-2722
GP	Jones, Robert E.	225 S. Market, Benton 72015	778-3608
FP	Kirk, Marvin N.	P. O. Box 299, Benton 72015	778-8264
GP	Martindale, J. L.	323 Short St., Benton 72015	778-1124
P	Mizell, Walter S.	Benton Services Center, Benton 72015	778-1111
	McNichol, Ronald W.	Jamestown, North Dakota	
AN	Porter, Jim C.	910 N. East, Benton 72015	776-0052
A	Rountree, Helen	P. O. Box 370, Benton 72015	778-0421
GP	Stewart, David L.	P. O. Box 399, Benton 72015	778-8264
#	Stocker, William J.	Little Rock	
GP	Stubbs, Samuel P.	Benton Services Center, Benton 72015	778-1111, Ext. 371
OBG	Thibault, Frank G., Jr.	910 N. East, Benton 72015	778-0426
P	Thompson, John P.	Benton Services Center, Benton 72015	778-1111, Ext. 339
GP	Thorn, H. B., Jr.	302 W. South St., Benton 72015	778-4511
GS	Viner, Donald L.	105 McNeil, Benton 72015	778-7435
FP	Wright, John D.	321 Short St., Benton 72015	776-0603

SCOTT COUNTY

GP	Wright, Harold B.	P. O. Box 249, Waldron 72958	637-3111
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SEBASTIAN COUNTY

PD	Aclin, Richard R.	500 S. 16th, Fort Smith 72901	783-1085
RD	Adams, W. F.	1100 Murta Rd., Lincoln Hill, Van Buren 72956 (Res.)	474-8668
ORS	Alberty, Joe Paul	300 N. Greenwood, Fort Smith 72901	783-0225
EM	Alexander, R. Kent	1311 S. "I", Fort Smith 72901	441-4381
GS	Anderson, Paul M.	320 N. Greenwood, Fort Smith 72901	782-4066
OBG	Atkins, Jimmie G.	1500 Dodson, Fort Smith 72901	782-2071
GP	Bailey, Charles W.	P. O. Box 426, Greenwood 72936	996-4111
P	Baker, Max A.	924 Adelaide, Fort Smith 72901	785-1428

Type of Practice	Member's Name	Address	Telephone Number
GE...	Barker, Robert C., Jr.	1500 Dodson, Fort Smith 72901	782-2071
D.....	Bradiord, A. C.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
R.....	Broadwater, John R.	1500 Dodson, Fort Smith 72901	782-2071
ORS.....	Brown, Byron L.	100 N. 16th, Fort Smith 72901	783-3604
RD.....	Brown, James A.	6810 S. "T", Fort Smith 72903 (Res.)	452-1231
ORS.....	Buie, James H.	1500 Dodson, Fort Smith 72901	782-2071
FP.....	Busby, James D.	100 South 14th, Fort Smith 72901	785-2431
PD.....	Cabell, Ben B.	312 S. 16th, Fort Smith 72901	782-7921
R.....	Cassady, Calvin R.	P. O. Box 1612, Fort Smith 72902	782-5035
P.....	Chambers, Donald S.	924 Adelaide, Fort Smith 72901	785-1428
AN.....	Chamblin, Don W.	1500 Dodson, Fort Smith 72901	782-2071
TS.....	Clemmons, Edward E.	522 S. 16th, Fort Smith 72901	785-1413
AN.....	Coffman, Edwin L.	1500 Dodson, Fort Smith 72901	782-2071
NEP.....	Coleman, Michael D.	1500 Dodson, Fort Smith 72901	782-2071
CRS.....	Crigler, Ralph E.	1500 Dodson, Fort Smith 72901	782-2071
R.....	Crow, Neil E.	P. O. Box 1612, Fort Smith 72902	782-2071
R.....	Culp, William C.	318 N. Greenwood, Fort Smith 72901	783-6174
EM.....	Cunningham, Charles S.	1311 S. "I", Fort Smith 72901	441-4381
EM.....	Darnall, Harley C.	P. O. Box 3491, Fort Smith 72913	441-4381
PTH.....	Davenport, Leo	922 Lexington, Fort Smith 72901	785-1447
P.....	Dorzab, Joe H.	924 Adelaide, Fort Smith 72901	785-1428
O8G.....	Ellis, Homer G.	P. O. Box 3507, Fort Smith 72913	785-2411
OPH.....	Faier, Samuel Z.	1500 Dodson, Fort Smith 72901	782-2071
HEM.....	Fecher, Dennis R.	1500 Dodson, Fort Smith 72901	782-2071
U.....	Feder, Frederick P.	720 Lexington, Fort Smith 72901	782-7261
FP.....	Feild, T. A., III	3600 N. "O", Fort Smith 72904	783-5158
OPH.....	Felker, Gary V.	3000 Rogers, Fort Smith 72901	782-8892
AN.....	Fisher, Robert D.	1500 Dodson, Fort Smith 72901	782-2071
PD.....	Floyd, Charles H.	617 S. 16th, Fort Smith 72901	783-3165
U.....	Francis, Darryl R., II	600 S. 14th, Fort Smith 72901	785-2604
OTO.....	Gedosh, Edgar A.	600 S. 16th, Fort Smith 72901	782-6022
R.....	Gill, James A.	1500 Dodson, Fort Smith 72901	782-2071
PDC.....	Gilliland, J. Campbell	1500 Dodson, Fort Smith 72901	782-2071
PTH.....	Girkin, R. Gene	922 Lexington, Fort Smith 72901	785-1447
RD.....	Goldstein, Davis W.	Waldron Road at Ellsworth, Fort Smith 72901	452-2077
AN.....	Goodman, Raymond C.	1500 Dodson, Fort Smith 72901	782-2071
N.....	Griggs, William L., III	1500 Dodson, Fort Smith 72901	782-2071
ORS.....	Hathcock, Alfred R.	1500 Dodson, Fort Smith 72901	782-2071
GS.....	Hawkins, S. Wright	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
U.....	Hewett, Archie L.	600 S. 14th, Fort Smith 72901	785-2604
GS.....	Hoge, Marlin B.	320 N. Greenwood, Fort Smith 72901	782-4066
IM.....	Holman, William A.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
GS.....	Holmes, Williams C., Jr.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
ADM.....	Hornberger, Evans Z., Jr.	1311 S. "I", Fort Smith 72901	441-4601
OPH.....	Hughes, Robert P., Jr.	3000 Rogers, Fort Smith 72901	782-8892
R.....	Huskison, William T.	318 N. Greenwood, Fort Smith 72901	783-6174
O8G.....	Hyde, Marshall L.	P. O. Box 3507, Fort Smith 72913	785-2411
FP.....	Ingram, Ralph N.	1120 Lexington, Fort Smith 72901	785-2657
ORS.....	Irwin, Peter J.	1500 Dodson, Fort Smith 72901	782-2071
GS.....	Janes, Robert H.	1500 Dodson, Fort Smith 72901	782-2071
EM.....	Jones, W. Duane	1311 South "I", Fort Smith 72901	441-4381
O8G.....	Kelsey, J. F.	P. O. Box 3507, Fort Smith 72913	785-2411
RD.....	Kennedy, Virgil N.	5417 Grand Ave., Fort Smith 72903 (Res.)	452-3351
CD.....	Klopfenstein, Keith	1500 Dodson, Fort Smith 72901	782-2071
ORS.....	Knight, William E.	1500 Dodson, Fort Smith 72901	782-2071
END.....	Kocher, David B.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
PTH.....	Koenig, A. Samuel, III	922 Lexington, Fort Smith 72901	785-1447
PTH.....	Koenig, Albert S., Jr.	922 Lexington, Fort Smith 72901	785-1447
O8G.....	Kradel, R. Paul	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
FP.....	Kramer, Ralph G.	603 Lexington, Fort Smith 72901	783-8917
RD.....	Krock, Fred H.	3700 Free Ferry, Fort Smith 72903 (Res.)	783-4832
FP.....	Kutait, Kemal E.	1120 Lexington, Fort Smith 72901	785-2655
IM.....	Lambiotte, Louis O.	1500 Dodson, Fort Smith 72901	782-2071
PTH.....	Landrum, Annette V.	P. O. Box 1684, Fort Smith 72902	782-4983
GS.....	Landrum, Samuel E.	522 S. 16th, Fort Smith 72901	785-1413
OTO.....	Lane, Charles S., Jr.	600 S. 16th, Fort Smith 72901	782-6022
AN.....	Lenington, Jerry O.	1500 Dodson, Fort Smith 72901	782-2071
IM.....	Lewing, Hugh S.	P. O. Box 3006, Fort Smith 72913	783-3158
FP.....	Lilly, Ken E.	1120 Lexington, Fort Smith 72901	785-2655
NS.....	Lockhart, William G.	1500 Dodson, Fort Smith 72901	782-2071
GS.....	Lockwood, Frank M.	1500 Dodson, Fort Smith 72901	782-2071
ORS.....	Long, James W.	1500 Dodson, Fort Smith 72901	782-2071
NS.....	MacDade, Albert D.	1500 Dodson, Fort Smith 72901	782-2071
D.....	Magness, Jack L., Jr.	Oklahoma City, Oklahoma	
IM.....	Martin, Art B.	1500 Dodson, Fort Smith 72901	782-2071
FP.....	Martin, Maurice C. (Rick)	P. O. Box 366, Greenwood 72936	996-4111
O8G.....	Mason, Joe N.	1500 Dodson, Fort Smith 72901	782-2071
IM.....	Masri, Hassan M.	1500 Dodson, Fort Smith 72901	782-2071
GP.....	Meador, Don M.	3600 N. "O", Fort Smith 72904	783-5158
R.....	Mendelsohn, E. A.	1500 Dodson, Fort Smith 72901	782-2071
GS.....	Mings, Harold H.	1500 Dodson, Fort Smith 72901	782-2071
OPH.....	Moulton, Everett C., Jr.	3000 Rogers, Fort Smith 72901	782-8892
RD.....	Murchison, Roary A.	19 Haven Dr., Fort Smith 72901 (Res.)	782-5323
#.....	McCraney, Holden C.	Fort Smith	
FP.....	McDonald, H. P.	2044 N. 29th, Fort Smith 72904	782-4833
OPH.....	McEwen, Stanley R.	3000 Rogers, Fort Smith 72901	782-8892
IM.....	McMinimy, D. J.	1500 Dodson, Fort Smith 72901	782-2071
D.....	Niemann, Jeffrey M.	316 Lexington, Fort Smith 72901	783-1121
AN.....	Northum, Charles S.	1500 Dodson, Fort Smith 72901	782-2071
GS.....	Olson, John D.	1500 Dodson, Fort Smith 72901	782-2071
GE.....	Paris, Charles H.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
PD.....	Parker, Joel E., Jr.	617 S. 16th, Fort Smith 72901	783-3165
R.....	Parker, Thomas G.	318 N. Greenwood, Fort Smith 72901	783-6174
GP.....	Parta, H. John	3120 Jenny Lind, Fort Smith 72901	782-4986
TS.....	Patrick, Donald L.	1500 Dodson, Fort Smith 72901	782-2071
IM.....	Pence, Eldon D., Jr.	314 N. Greenwood, Fort Smith 72901	782-3001
GYN.....	Phillips, W. P.	P. O. Box 3507, Fort Smith 72913	785-2411
FP.....	Pillstrom, Lawrence G.	1120 Lexington, Fort Smith 72901	785-2655
IM.....	Poe, McDonald, Jr.	320 N. Greenwood, Fort Smith 72901	782-3001
CD.....	Pope, J. R.	1500 Dodson, Fort Smith 72901	782-2071
PD.....	Post, James M., Jr.	617 S. 16th, Fort Smith 72901	783-3165
CD.....	Prewitt, Taylor A.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
IM.....	Price, Lawrence C.	P. O. Box 3006, Fort Smith 72913	783-3158
OTO.....	Raymond, Thomas H.	600 S. 16th, Fort Smith 72901	782-6022
N.....	Reul, Charles G.	1500 Dodson, Fort Smith 72901	782-2071
R.....	Rogers, Paul L.	318 N. Greenwood, Fort Smith 72901	783-6174
R.....	Russell, Rex D.	1500 Dodson, Fort Smith 72901	782-2071

Type of Practice	Member's Name	Address	Telephone Number
AN	Safranek, Edward J.	216-A N. Greenwood, Fort Smith 72901	783-1497
GS	Saviers, Boyd M.	1500 Dodson, Fort Smith 72901	782-2071
A	Schirmer, Roy E.	1420 S. "I", Fort Smith 72901	782-2983
IM	Schwarz, Paul R.	404 S. 16th, Fort Smith 72901	783-3159
N	Serrano, Ernest E.	1500 Dodson, Fort Smith 72901	782-2071
GYN	Sherman, Robert L.	P. O. Box 3507, Fort Smith 72913	785-2411
GP	Shermer, J. P.	623 S. 21st, Fort Smith 72901	783-1520
#	Shippey, W. L.	Fort Smith	
O8G	Smith, Douglas B.	P. O. Box 3507, Fort Smith 72913	785-2411
PTH	Smith, Kent	922 Lexington, Fort Smith 72901	785-1447
R	Snider, James R.	P. O. Box 1612, Fort Smith 72902	782-2071
ORS	Stanton, William B.	300 N. Greenwood, Fort Smith 72901	783-0225
PUD	Stewart, Jerry R.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
GP	Stewart, John B.	603 Lexington, Fort Smith 72901	783-8917
PS	Still, Eugene F., II	1500 Dodson, Fort Smith 72901	782-2071
FP	Swena, Richard R.	1322 N. "8", Fort Smith 72901	785-2426
O8G	Tate, William B.	1500 Dodson, Fort Smith 72901	782-2071
GP	Thompson, James B.	605 Lexington, Fort Smith 72901	782-6081
IM	Thompson, J. Kenneth	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
FP	Thompson, Robert J.	605 Lexington, Fort Smith 72901	782-6081
HEM	Turner, William F.	1500 Dodson, Fort Smith 72901	782-2071
D	Vanderpool, Roy E.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
U	Wahman, Gerald E.	1500 Dodson, Fort Smith 72901	782-2071
OPH	Wallace, Kenneth K.	3000 Rogers, Fort Smith 72901	782-8894
PD	Walling, Robert V.	617 South 16th, Fort Smith 72901	783-3165
PD	Watts, John C.	500 S. 16th, Fort Smith 72901	783-1085
HEM	Wells, John D.	Waldron Road at Ellsworth, Fort Smith 72903	452-2077
AN	Westermann, Norman F.	1500 Dodson, Fort Smith 72901	782-2071
O8G	Whitaker, T. J., Jr.	1823 Dodson, Fort Smith 72901	782-4929
IM	White, J. Earle	2702 Barry, Fort Smith 72901	783-3126
PH	Whittaker, L. A.	708 Lexington, Fort Smith 72901	785-2801
ORS	Wideman, John W.	300 N. Greenwood, Fort Smith 72901	783-0225
CDS	Williams, Carl L.	522 S. 16th, Fort Smith 72901	785-1413
FP	Williams, John R.	100 S. 14th, Fort Smith 72901	785-2431
CD	Williams, Thomas N.	1500 Dodson, Fort Smith 72901	782-2071
OTO	Wills, Paul I.	600 S. 16th, Fort Smith 72901	782-6022
U	Wilson, Carl L.	1500 Dodson, Fort Smith 72901	782-2071
U	Wilson, Morton C.	1500 Dodson, Fort Smith 72901	782-2071
U	Wilson, Steven K.	1500 Dodson, Fort Smith 72901	782-2071
CDS	Woods, Leon P.	1500 Dodson, Fort Smith 72901	782-2071
RD	Woods, William M.	P. O. Box 63G, Hackett 72937 (Res.)	638-5301

SEVIER COUNTY

GS	Balch, James I.	P. O. Box 68, DeQueen 71832	584-3520
GP	Brown, Ollie D., Jr.	P. O. Box 890, DeQueen 71832	584-2465
FP	Buffington, Mike	P. O. Box 391, DeQueen 71832	584-2022
FP	Daniel, J. Frank	Highway 70 West, DeQueen 71832	584-2022
GP	Daugherty, Joe D.	P. O. Box 890, DeQueen 71832	584-2465
GP	Dickinson, George W.	Highway 70 West, DeQueen 71832	584-2022
RD	Dickinson, Richard B. (Bill)	422 7th St., DeQueen 71832 (Res.)	584-2085
	Dickinson, Rodger C.	Iran	
FP	Jones, Charles N.	P. O. Box 391, DeQueen 71832	584-2022
GS	Norwood, William L.	Highway 70 West, DeQueen 71832	584-2022
PD	Parkin, Douglas E.	Highway 70 West, DeQueen 71832	584-2022
FP	Pullen, Wayne G.	P. O. Box 391, DeQueen 71832	584-2022
R	Williams, William C.	Highway 70 West, DeQueen 71832	584-2022

ST. FRANCIS COUNTY

RD	Chaffin, E. J.	P. O. Box 667, Hughes 72348	339-2398
FP	Cogburn, Harold N.	P. O. Box 4000, Forrest City 72335	633-1425
GP	Collins, E. Morgan	P. O. Box 989, Forrest City 72335	633-1952
FP	Collum, Grady R.	P. O. Box 577, Hughes 72348	339-2111
GP	Crawley, Charles E.	P. O. Box 4000, Forrest City 72335	633-1425
FP	Fong, Fun H.	P. O. Box 735, Hughes 72348	339-2373
FP	Hammons, Edward P.	P. O. Box 4000, Forrest City 72335	633-1425
GP	Hollis, Herbert H.	317 N. Washington, Forrest City 72335	633-4209
GP	Laney, J. Neal	325 N. Washington, Forrest City 72335	633-4711
FP	Lockhart, David L.	P. O. Box 70, Forrest City 72335	633-1243
FP	McPhail, George T.	P. O. Box 989, Forrest City 72335	633-1952
FP	Sexton, Giles A.	P. O. Box 4000, Forrest City 72335	633-1425

UNION COUNTY

ORS	Callaway, James C.	516 W. Faulkner, El Dorado 71730	863-3201
FP	Carroll, Peter J.	416 N. Newton, El Dorado 71730	862-5119
RD	Cathey, A. D.	1200 W. Main St., El Dorado 71730 (Res.)	863-3272
U	Clark, James F.	524 W. Faulkner, El Dorado 71730	863-4267
FP	Clowney, A. R.	312 Thompson, El Dorado 71730	863-8116
#	Cullins, John G.	Little Rock	
OTO	Cyphers, Charles D.	519 W. Faulkner, El Dorado 71730	862-3471
GP	Dunn, Tom L.	P. O. Box 538, Hampton 71744	798-2241
PTH	Duzan, Kenneth R.	443 W. Oak, El Dorado 71730	862-1351
PTH	Elliott, Wayne G.	443 W. Oak, El Dorado 71730	862-1351
IM	Ellis, Jacob P.	P. O. Box 1957, El Dorado 71730	862-5184
GYN	Fitch, Leston E.	445 W. Oak, El Dorado 71730	863-7217
GP	Harper, John W.	425 W. Oak, El Dorado 71730	863-5135
ORS	Hartmann, Ernest R.	619 W. Grove, El Dorado 71730	863-5146
GS	Henley, Paul G.	700 W. Faulkner, El Dorado 71730	863-9542
FP	Hill, Grady E., Jr.	427 W. Oak, El Dorado 71730	863-7158
RD	Jameson, Sam G.	711 N. Madison, El Dorado 71730 (Res.)	862-2681
R	King, Billy D.	460 W. Oak, El Dorado 71730	863-2253
OPH	Landers, Gardner H.	318 Thompson, El Dorado 71730	862-4216
GP	Moore, Berry L., Jr.	615 W. Grove, El Dorado 71730	863-4185
GS	Moore, John H.	412 N. Washington, El Dorado 71730	862-3411
U	Murfee, Robert M.	619 N. Newton, El Dorado 71730	862-5439
PD	McKinney, J. Schuler	209 Thompson, El Dorado 71730	862-4994
R	Parkman, Robert L., Jr.	P. O. Box 1626, El Dorado 71730	863-2253
GS	Pinson, John H., Jr.	312 Thompson, El Dorado 71730	863-8116
IM	Pirriquet, Allan S.	714 W. Faulkner, El Dorado 71730	862-5184
GP	Riley, W. S.	526 W. Faulkner, El Dorado 71730	863-4508
R	Roesler, Marvin J.	700 W. Grove, El Dorado 71730	862-6661
PD	Rogers, Henry B.	209 Thompson, El Dorado 71730	862-4994
D	Sample, Dorothy C.	525 W. Faulkner, El Dorado 71730	862-5485
GS	Scurlock, William R.	412 N. Washington, El Dorado 71730	862-3411
GP	Seale, J. E., Jr.	528 W. Faulkner, El Dorado 71730	863-7154

Type of Practice	Member's Name	Address	Telephone Number
FP	Smith, George W.	427 W. Oak, El Dorado 71730	862-7661
AN	Stevens, Willis M., Jr.	2200 W. Elm, El Dorado 71730	862-3828
OBG	Thibault, Frank G., Sr.	416 N. Newton, El Dorado 71730	862-5403
GS	Tommey, C. E.	412 N. Washington, El Dorado 71730	862-3412
OBG	Turnbow, R. L.	427 W. Oak, El Dorado 71730	863-6157
FP	Warren, George W.	P. O. Box W, Smackover 71762	725-3471
IM	Weedman, James B.	P. O. Box 1957, El Dorado 71730	862-5184
GS	Wharton, Joseph B., Jr.	317 Thompson, El Dorado 71730	862-4221
IM	Wilson, Larkin M.	714 W. Faulkner, El Dorado 71730	862-5184
OPH	Wilson, Paul H.	514 W. Faulkner, El Dorado 71730	862-5352
GS	Yocum, David M., Jr.	412 N. Washington, El Dorado 71730	862-3411

VAN BUREN COUNTY

GP	Hall, John A.	P. O. Box 310, Clinton 72031	745-2111
GP	McBryde, William C.	P. O. Box 11, Fairfield Bay 72153	884-3399
GP	Pearce, Charles G.	P. O. Box 51, Clinton, 72031	745-2412
FP	Read, Paul S.	Route 2, Box 277, Fairfield Bay 72153	884-3939
FP	Stuteville, Orion H.	P. O. Box 397, Leslie 72645	447-2711
#	Williams, John H.	Marshall	

WASHINGTON COUNTY

D	Albright, Spencer D., III	1925 Green Acres Rd., Fayetteville 72701	443-3413
GP	Applegate, C. Stanley	220 Meadow Avenue, Springdale 72764	751-4637
ORS	Arnold, James A.	P. O. Box 1608, Fayetteville 72701	521-2752
RD	Baggett, Jeff J.	P. O. Box 233, Prairie Grove 72753	846-2312
FP	Baker, Donald B.	241 West Spring, Fayetteville 72701	521-8260
FP	Benjamin, George H.	304 S. Maxwell, Siloam Springs 72761	524-3141
FP	Box, Ivan H.	P. O. Box E, Huntsville 72740	738-2115
PTH	Boyce, John M.	609 W. Maple, Springdale 72764	751-5711
RD	Boyer, H. L.	107 N. Star, Lincoln 72744 (Res.)	824-3203
U	Brandon, H. B.	1300 Zion Rd., Fayetteville 72701	521-8980
RD	Brizzolara, Charles M.	5512 S. Grandview Rd., Little Rock 72207 (Res.)	666-5977
U	Brooks, Walter Ely	1300 Zion Rd., Fayetteville 72701	521-8980
P	Brown, Spencer H.	4313 W. Markham, Little Rock 72205	664-4500
FP	Buckley, Carrie D., Jr.	241 W. Spring, Fayetteville 72701	521-8260
PD	Burnside, Wade W.	207 E. Dickson, Fayetteville 72701	443-3471
IM	Butler, G. Harrison	675 Lollar Lane, Fayetteville 72701	521-8200
RD	Butt, William J.	P. O. Box 1147, Fayetteville 72701 (Res.)	442-7563
FP	Capps, James A., Jr.	1215 S. Thompson, Springdale 72764	756-0610
AN	Chester, Robert L.	660 Lollar Lane, Fayetteville 72701	521-3050
RD	Clark, LeMon	1679 Elmwood, Fayetteville 72701 (Res.)	521-7657
ORS	Coker, Tom P.	P. O. Box 1608, Fayetteville 72701	521-2752
OBG	Cole, George R., Jr.	740 Lollar Lane, Fayetteville 72701	521-4433
OBG	Councille, Clifford C.	207 E. Dickson, Fayetteville 72701	442-5377
OTO	Crocker, Thermon R.	102 W. Dickson, Fayetteville 72701	521-1238
GP	Day, John K.	Student Health Services, UofA, Fayetteville 72701	575-4451
OBG	DeSandre, Frank A.	606 S. Young, Springdale 72764	751-6284
AN	Dodson, Charles D.	946 California, Fayetteville 72701	443-3387
GS	Dorman, Jerry S.	P. O. Box 689, Springdale 72764	756-6161
GP	Dorman, John E.	P. O. Box 689, Springdale 72764	756-6161
FP	Dorman, John W.	P. O. Box 689, Springdale 72764	756-6161
IM	Duncan, Philip E.	675 Lollar Lane, Fayetteville 72701	521-8200
P	Edmisten, Jack	P. O. Box 1108, Fayetteville 72701	521-1221
R	Edmondson, Charles T.	607 W. Maple, Springdale 72764	751-5711
FP	Etherington, Robert A.	41 Kingshighway, Eureka Springs 72632	253-9746
P	Finch, Stephen B.	617 W. Dickson, Fayetteville 72701	443-3491
OTO	Fincher, G. Glen	2100 Green Acres Rd., Fayetteville 72701	521-3363
FP	Gardner, Buford M.	P. O. Box 730, Fayetteville 72701	443-5291
D	Ginger, John D.	1925 Green Acres Rd., Fayetteville 72701	443-3413
R	Greenhaw, James J.	Siloam Springs Memorial Hospital, Siloam Springs 72761	524-4141
IM	Hall, Joe B.	675 Lollar Lane, Fayetteville 72701	521-8200
R	Harris, Murray T.	P. O. Box 1286, Fayetteville 72701	521-6480
OBG	Harrison, William F.	207 E. Dickson, Fayetteville 72701	442-5377
FP	Hart, Hamilton R.	241 W. Spring, Fayetteville 72701	521-3600
RD	Hathcock, Preston L.	909 Hall Ave., Fayetteville 72701 (Res.)	442-4424
D	Hayden, Carson R.	Evelyn Hills Shopping Ctr., Fayetteville 72701	442-9211
PD	Haynes, James E.	207 E. Dickson, Fayetteville 72701	443-3471
OPH	Henry, L. Murphey	P. O. Box 1267, Fayetteville 72701	442-2981
OPH	Henry, Louise M.	P. O. Box 1267, Fayetteville 72701	442-5227
OPH	Henry, Morris M.	P. O. Box 1767, Fayetteville 72701	442-2981
IM	Higginbotham, Hugh B.	675 Lollar Lane, Fayetteville 72701	521-8200
AN	Horne, Glennon A.	1665 N. College, Fayetteville 72701	521-3832
FP	Huskins, James D.	304 S. Maxwell, Siloam Springs 72761	524-3141
FP	Hutchinson, Harry T.	304 S. Maxwell, Siloam Springs 72761	524-3141
A	Hutson, Martha	2100 Green Acres Rd., Fayetteville 72701	521-3363
P	Jarvis, Fred D., Jr.	P. O. Box 1185, Fayetteville 72701	442-5482
NS	Johnson, Jorge H.	P. O. Box 1608, Fayetteville 72701	521-2752
P	Jones, Edwin C.	P. O. Box 728, Springdale 72764	751-7052
FP	Jones, Evelyn R.	VA Hospital, Fayetteville 72701	443-2301, Ext. 529
FP	Jones, J. Laurence	Student Health Service, UofA, Fayetteville 72701	575-4451
ORS	Kaylor, Coy C.	P. O. Box 1608, Fayetteville 72701	521-2752
A	Koehn, Laura J.	2100 Green Acres Rd., Fayetteville 72701	521-3363
PD	Lawson, Wilbur G.	207 E. Dickson, Fayetteville 72701	442-6226
RD	Lesh, Ruth E.	356 N. Washington, Fayetteville 72701 (Res.)	442-2163
RD	Lesh, Vincent O.	Route 6, Box 273, Rogers 72756 (Res.)	636-6811
OBG	Lushbaugh, Harmon	740 Lollar Lane, Fayetteville 72701	521-4433
FP	Martin, J. David	2100 Green Acres Rd., Fayetteville 72701	521-1662
OBG	Mashburn, James D.	207 E. Dickson, Fayetteville 72701	442-5377
TS	Miller, Charles H.	1749 N. College, Fayetteville 72701	521-3300
IM	Moore, Arthur F.	675 Lollar Lane, Fayetteville 72701	521-8200
ORS	Moore, James F.	P. O. Box 1608, Fayetteville 72701	521-2752
GP	Moose, John I.	304 S. Maxwell, Siloam Springs 72761	524-3141
GP	Morgan, Tad M.	Quandt and Young Sts., Springdale 72764	751-9236
GS	Murry, J. Warren	1749 N. College, Fayetteville 72701	521-3300
R	McAllister, Joseph H.	Route 4, Box 188, Huntsville 72740	665-2735
OPH	McAllister, Max F.	P. O. Box 1065, Fayetteville 72701	442-4011
GP	McCollum, Robert H.	102 W. Dickson, Fayetteville 72701	521-1114
GP	McEvoy, Francis E.	803 Quandt, Springdale 72764	751-9236
PTH	Nettleship, Mae B.	P. O. Box 817, Fayetteville 72701	443-3050
IM	Painter, Monroe B.	675 Lollar Lane, Fayetteville 72701	521-8200
OPH	Parker, Joe C.	700 S. Young St., Springdale 72764	751-1028
FP	Parker, Lee B., Jr.	241 W. Spring, Fayetteville 72701	521-8260
FP	Patrick, James K.	241 W. Spring, Fayetteville 72701	521-8260
R	Platt, Michael R.	1409 Camino Real, Springdale 72764	751-2388
FP	Power, John R.	220 Meadow Ave., Springdale 72764	751-4637

Type of Practice	Member's Name	Address	Telephone Number
FP	Puckett, Billy J.	304 S. Maxwell, Siloam Springs 72761	524-3141
O8G	Rabon, Nancy A.	Evelyn Hills Shopping Ctr., Fayetteville 72701	442-8261
R	Riddick, Earl B., Jr.	1617 N. College, Fayetteville 72701	521-6480
GS	Rolufs, Lloyd S.	41 Kingshighway, Eureka Springs 72632	253-9746
O8G	Romine, James C.	740 Lollar Lane, Fayetteville 72701	521-4433
FP	Rouse, Joe P.	241 West Spring, Fayetteville 72701	521-8260
GS	Rudko, Michael	908 Rolling Hills, Fayetteville 72701	521-6780
RD	Siegel, Lawrence H.	233 Oakwood, Fayetteville 72701 (Res.)	442-2083
OPH	Singleton, E. Mitchell	P. O. Box 1343, Fayetteville 72701	521-4843
A	Sisco, Charles P.	P. O. Box 65, Springdale 72764	751-4579
GP	Sisco, Friedman	P. O. Box 65, Springdale 72764	751-4579
FP	Smith, Austin C.	P. O. Box E, Huntsville 72740	738-2115
FP	Steadman, Hunter M., Jr.	41 Kingshighway, Eureka Springs 72632	253-9746
FP	Stinnett, Charles H.	304 S. Maxwell, Siloam Springs 72761	524-3141
RD	Van Pelt, Ross	P. O. Box 126, Beaver 72613 (Res.)	253-8546
FP	Vinzant, John W.	22 E. Spring, Fayetteville 72701	443-3417
R	Ward, H. Wendell	P. O. Box 1786, Fayetteville 72701 (Res.)	521-6556
GP	Weaver, Donald D.	P. O. Box 9, Gentry 72734	736-2213
GP	Weaver, Robert H.	P. O. Box 9, Gentry 72734	736-2213
GP	Wheat, Ed	130 N. Spring, Springdale 72764	751-5704
A	Whiteside, Edwin	P. O. Box 1208, Fayetteville 72701	443-5241
FP	Whiting, Tom D.	803 Quandt, Springdale 72764	751-9236
FP	Wilson, Robert B., Jr.	P. O. Box E, Huntsville 72740	738-2115
GS	Wood, Jack A.	1749 N. College, Fayetteville 72701	521-3300

WHITE COUNTY

GP	Adair, Thomas L.	P. O. Box 350, Bald Knob 72010	724-3220
R	Bell, John E.	1400 W. Pleasure, Searcy 72143	268-8500
FP	Bridges, Olen W.	P. O. Box 476, Searcy 72143	268-2407
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	April 16-19, 1978	Arlington Hotel, Hot Springs
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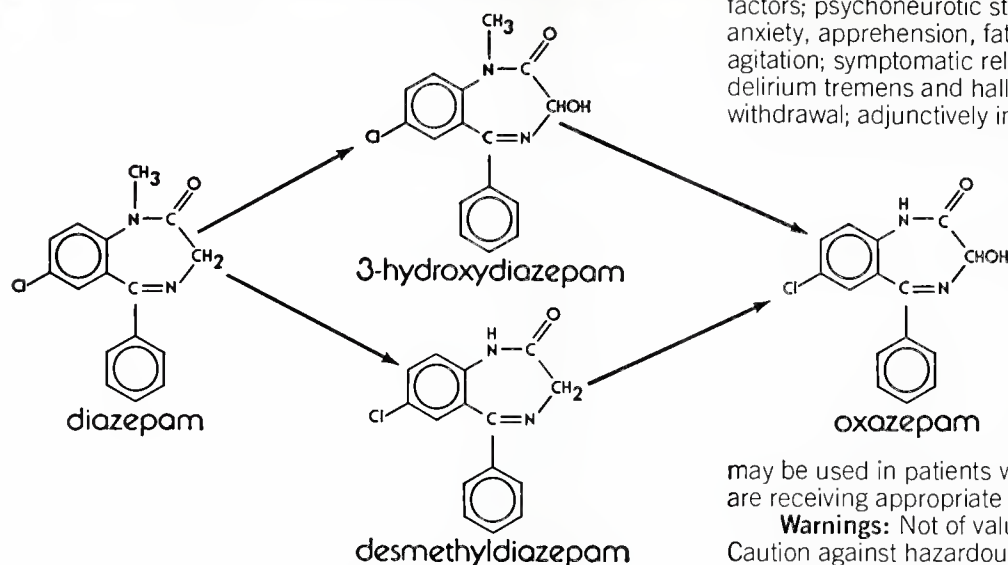
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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579 to be sent to Arkansas Medical Society, P. O. Box 1208, Fort Smith, Arkansas 72901. Published monthly under direction of the Council, Arkansas Medical Society, Volume 73, No. 8. Subscription \$2.00 a year. Single copies 50 cents. Entered as second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

Poisoning from the Mushroom *Stropharia coronilla* (Bull. ex Fr.) Quel.

Henry W. Thomas, M.D.,* Duane H. Mitchel, M.D.,** and Barry W. Rumack, M.D.***

In spite of oft-repeated warnings of the dangers of the practice of gathering and eating uncultivated or "wild" mushrooms by individuals uninformed in identification of these often delectable but sometimes deadly specimens, we still read accounts, all too frequently, of individuals, and in some instances entire families, who suffer serious poisoning and even death by this means. Presented herein is the report of two patients who incurred severe poisoning after ingestion of a species of mushroom hitherto unreported as a definitely known source of severe human poisoning, and who presented with symptoms not ascribed to previously known mushroom toxins.

Case Report

Two healthy young men from Iowa, 18 and 20 years old, while visiting relatives in Arkansas in June, 1975, collected mushrooms one morning while the family they were visiting was out for the day. They made a soup by cooking the mushrooms in water and adding milk, flour and salt. They ate the soup about noon, the older eating only about one-cupful, the younger eating over a pint. About one hour later the younger noted the onset of a severe headache with generalized aching and malaise. Shortly thereafter the older experienced the same symptoms and both developed severe aching pains described by both as "in my bones".

They both had difficulty walking because of incoordination, ataxia, and/or dizziness. The older stated, "I couldn't get my footing." They then vomited, the older only once but "a lot" and the younger "a good ten times at least." Both had crampy abdominal pains and the younger had a copious loose stool. Both had weakness, unsteadiness of gait, and felt confused, and the older "kept seeing things that

wasn't there." The younger "got real hot" and "thought mushrooms was growing out of me" and later, "passed out". What happened during the next four or five hours until the family returned home is not clear. The younger apparently became irrational or delirious with fever and was prostrated. The older "laid around all afternoon". When the family came home the two were taken to the hospital where they were seen in the Emergency Room about 7:00 p.m.

The examining physician described them both as acutely ill and confused so that they gave a rambling, incoherent history. Both were flushed, had a rapid pulse and low blood pressure. The younger, T 102°, P 120, BP 88/60. The older was afebrile T 98°, P 120, BP 100/70. Otherwise, except for the evident confusion and slight generalized abdominal tenderness, their physical examinations were normal. They were both given atropine empirically, IV fluids, magnesium citrate as a laxative, pentazocine (Talwin®) and acetaminophen (Tylenol®) for pain and sodium secobarbital (Seconal®) for sedation.

By the next day they still had severe headaches and ached all over, particularly in the back and legs, "in the bones". Both were afebrile with normal pulse and blood pressure. The younger had a few more watery stools (possibly from the laxative). A cousin whom they were visiting brought in several specimens of three different types of mushrooms from the same collecting area and the boys pointed out the kind they had eaten which was identified by the Botany Department of the University of Arkansas as *Stropharia coronilla* (Bull. ex Fr.) Quel. Their medical records and a colored photograph of the mushrooms were forwarded to the Rocky Mountain Poison Center. The mushrooms' pictures all appeared to be of the same species as the one identified.

The boys persisted in their story that they had collected the mushrooms for food as they had previously done at home in Iowa and stated,

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Case report of two patients treated at Dermott-Chicot Memorial Hospital, Dermott, Arkansas 71638, by H. W. Thomas, M.D., Chief-of-Staff, in consultation with Poison Control Center.

"we must have got the wrong kind of mushroom." The attending physician had information from "a local hippie drug cult", that it was the local "fad" to go "mushrooming" in cow pastures, shove aside "a cow pie" and collect the mushrooms growing underneath. The method used for identification was to crush the stems and those with "blue juice" were considered non-poisonous but good for a "trip".

Twenty-four hours after admission both parties ate a soft diet, were symptom-free and were discharged on the second morning. The doctor's diagnosis was the same as the patients': "wrong mushroom!"

Discussion

As has been reported in mycological and medical journals,¹ as well as in newspapers,² the custom of gathering hallucinogenic *Psilocybe* from cow pastures is apparently widespread. The section *Caerulescentes* sensu Singer³ of the genus *Psilocybe*, as its name implies contains the blue-footed or blue-stemmed species which have both "blue juice" and hallucinogenic properties. Despite warnings from knowledgeable people that poisonous mushrooms also are found in and around cow dung, the practice is still popular. Various poisonous species of *Panaeolus* and *Stropharia* are frequently eaten by mistake, as in this case.

Mushrooms in the genus *Stropharia* are small, brown (one species is bright green) mushrooms frequently found in grassy areas, especially in pastures and lawns. The persistent ring around the upper part of the stem distinguishes these from the closely-related *Psilocybe* species. Superficially they resemble edible species in the genus *Agaricus* so that individuals collecting *Agaricus* for food or *Psilocybe* for hallucinogenic effects may get *Stropharia* by mistake. Many of the *Stropharia* species are known to be poisonous but, to our knowledge, these are the first two cases of poisoning by *Stropharia coronilla* reported in the English literature. Most American mushroom books^{4,5,6} since Kauffman's in 1918⁷ list this species as "suspect or possibly poisonous". An exception is Tylutki⁸ who lists it as "not recommended" for food but states that he has eaten two caps without "ill-effects" and that he knew "one individual who ate a hearty meal of it, having mistaken it for an *Agaricus*, and pronounced it quite tasty." Many European authors (Hennig, Romagnesi, and Rinaldi, and Tyndelo⁹ list it as edible.

The symptoms described in these two cases are not those of muscarine poisoning and muscarine has not been found in any of the *Stropharia* species analyzed. Atropine was given empirically before the mushrooms were identified. It certainly had no effect on the symptoms except perhaps to reduce the crampy abdominal pains. It probably made the flushing and tachycardia worse. Neither are the symptoms those of the hallucinogenic indoles found in *Psilocybe*. The weakness and unsteadiness of gait with confusion, somnolence and distortion of vision or vague hallucinations are similar to the symptoms of muscimol-ibotenic acid poisonings that occur with the ingestion of *Amanita muscaria* and *Amanita pantherina*. The "bone pain" which seems to have been the most distressing symptom has not to our knowledge been described in any other type of mushroom poisoning. Until the toxin is identified we have no suggestions as to treatment other than supportive and symptomatic.

Summary

Two cases of poisoning from the ingestion of the mushroom *Stropharia coronilla* (Bull. ex Fr.) Quel. are reported. This is the first known report of human poisoning by this species. Deep "bone" pain appears to be a unique symptom of this poisoning. The toxin responsible for the severe symptoms appears to be different from those previously known and it is suggested that further investigation of this aspect is appropriate.

Acknowledgments. We wish to thank Dr. Danny L. Lattin of the University of Arkansas College of Pharmacy for toxicologic assistance.

REFERENCES

1. Jacobs, K. W.: "Hallucinogenic Mushrooms in Mississippi," *JMSMA*, 16: 35-37, February, 1975.
2. Anon. "Tiny Mushroom packs a Punch", *The Denver Post*, p. 44, Wednesday, December 10, 1975.
3. Singer, R.: *The Agaricales in Modern Taxonomy*, Third Edition, J. Cramer, Germany, 539-541, 1975.
4. Bandoni, R. J., and Szczawinski, A. F.: *Guide to Common Mushrooms of British Columbia*, A. Sutton, Victoria, British Columbia, 171, 1964.
5. Groves, J. W.: *Edible and Poisonous Mushrooms of Canada*, Queens Printer, Ottawa, Ontario, 204-205, 1962.
6. Miller, O. K., Jr.: *Mushrooms of North America*, E. P. Dutton and Co. Inc., New York, 121, 1972.
7. Kauffman, C. H.: *The Agariceae of Michigan*, Lansing, Michigan, 250-251, 1918.
8. Tylutki, E. E.: "Some Edible and Poisonous Mushrooms of Idaho," *J. Idaho Acad. Sci.*, 69-70, June, 1962.
9. Rinaldi, A., and Tynaldo, V.: *The Complete Book of Mushrooms*, Crown Publishers, Inc., New York, 54, 1974.

Questions and Answers About DES Exposure Before Birth

Information About Cancers and Other Abnormalities*

Diethylstilbestrol-type Drugs

Developed about 40 years ago, diethylstilbestrol or stilbestrol (DES) is a man-made hormone. During the 1940's and 1950's, many physicians prescribed DES or DES-type drugs to women who had complications of pregnancy. These conditions included:

- bleeding
- possible miscarriage
- diabetes

Findings of a number of scientific studies had suggested that pregnant women with these problems could benefit from treatment with DES.

DES-type drugs were prescribed under a number of trade names, some of which are listed on page 315.

DES and DES-type drugs are no longer used during pregnancy. They still are useful for a number of medical problems, however, including unusual menopausal symptoms and certain kinds of cancer of the breast and prostate.

The Problem

Mothers of perhaps several million young men and women were treated with DES-type drugs during pregnancy. No findings of any kind have been reported with respect to cancer in boys or men whose mothers received such a drug.

But in 1971, physicians found a link between DES and cancer of female reproductive organs. An unusual cancer of the vagina or the cervix (the lower end of the uterus) had developed in a small number of young women whose mothers had taken DES-type drugs during pregnancy. This cancer—clear-cell adenocarcinoma—is extremely rare.

Since then, while very few DES-exposed daughters have developed this cancer, other abnormalities have been found. These include tissue placed abnormally on the cervix or vagina. This tissue is not cancerous.

Depending on its location, this tissue is called vaginal adenosis, cervical erosion or ectropion. Its presence in the vagina would be like having the tissue which lines the inside of the mouth

growing out on to the face. Although the tissue would be healthy, it would be misplaced.

How to Find Out if a Young Woman or Girl Has Been Exposed to DES-Type Drugs

If exposure to DES-type drugs may have occurred before birth, it should be verified from medical records, if they are available. Many mothers say "I took something during pregnancy, but I don't remember what it was." If a mother remembers taking a medication, especially to prevent miscarriage or to treat complications from diabetes, it is possible that DES-type drugs may have been prescribed.

Records of the physician who cared for the mother during that pregnancy are the best source of information. If these records are not available, it is possible that the hospital where the delivery took place can obtain this information. In many cases, however, it may be impossible to determine whether DES-type drugs were used.

Who Should Be Examined

If medical records show a DES-type drug was used during pregnancy, or if there is any likelihood that it might have been used, the daughter should have an examination of the vagina and cervix by a physician if her menstrual periods have begun.

Such an examination is usually not necessary for girls under 14 years of age who have not yet begun to menstruate, unless vaginal bleeding or discharge occurs. In either case, a physician should always be consulted.

What the Examination Includes

The physician will perform a pelvic examination, take a Pap smear, and use an iodine solution to stain the lining of the vagina temporarily. The physician occasionally will use a magnifying instrument called a colposcope for the initial examination and for followup of DES-exposed daughters. The examination is not painful. The physician will explain the findings of the examination to the young woman, or to the mother or father if the girl is a minor.

Areas of the vaginal lining that appear abnormal (including those that fail to stain with iodine) are biopsied and examined by a pathologist. (A pathologist is a physician trained to recognize abnormal cells in tissue samples under a microscope.) Such biopsies (removal and ex-

*Compiled by the Professional and Public Relations Committee of the DESAD Project (Diethylstilbestrol and Adenosis) of the Division of Cancer Control and Rehabilitation, National Cancer Institute, and by the Office of Cancer Communications, NCI, U. S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health.

amination of tissue specimens) can be performed in the physician's office with small biopsy instruments that usually cause the patient very little discomfort.

Treatment generally will not be necessary. The doctor will recommend followup examinations at regular intervals.

Even though a vast majority of DES-exposed women will be found not to have cancer, close followup is important to insure early detection if cancer should develop. Treatment of DES-related cancers has been highly effective when the cancers have been detected at an early, localized stage.

Questions and Answers:

What is the risk of developing cancer if an individual's mother has taken a DES-type drug during pregnancy?

In young men, there have been no reported cases of unusual tumors or cancers. In women born since 1940, there have been in the United States fewer than 150 known cases of vaginal or cervical clear-cell cancers with definite evidence of the mothers having taken DES-type drugs during pregnancy. Because well over one million daughters may have been exposed to DES-type drugs during their mothers' pregnancies, the small number of known cancers suggests that the risk of developing the cancer is very small.

However, because the cancer can occur without causing symptoms, it is important for DES-exposed daughters to be examined as soon as possible so that the very rare cases of cancer may be detected early in their development. The earlier a cancer is discovered the more likely it can be cured.

Is cancer the only serious result of DES-exposure before birth?

Cancer is the only serious risk identified so far in several thousand daughters who have been examined thoroughly. The oldest women exposed to DES-type drugs before birth are only in their middle thirties, however. It is not possible to know now whether there will be other problems as these women grow older.

Does the risk of cancer depend upon the amount of the DES-type drug taken during pregnancy?

No, but exposure during the first five months of pregnancy does appear to be an important factor.

How long should DES-exposed daughters be concerned about the possibility of cancer?

It is not known how long such daughters are at an increased risk for development of this rare cancer of the vagina or cervix. Most of the more than 100 forms of cancer occur more often in the general population as men and women grow older. Everyone should avoid known causes of cancer, such as smoking, and be alert to changes in the body that may indicate cancer or other health problems.

Are there any symptoms of DES-exposure such as vaginal discharge?

The only apparent symptom of DES-exposure which is occasionally seen is an increase in vaginal discharge, due to the presence of gland-like tissue in the vagina or cervix.

In the individual not exposed before birth to DES-type drugs, there is usually some glandular tissue on the cervix, but in the DES-exposed daughters there is often much more. When this glandular tissue is found in the vagina, it is called adenosis. This tissue does secrete mucus.

Are there any changes in the DES-exposed daughters that might interfere with the chance of future pregnancy?

Women who have been exposed to DES-type drugs during their mothers' pregnancies have given birth to normal children. So far, there is no known problem of infertility in these women, nor is there any apparent increased risk of miscarriage. However, the total number of such women in the childbearing age is still relatively small, and therefore information is incomplete.

Does DES exposure change menstrual periods?

At this time, it does not appear that DES exposure has any effect upon the menstrual pattern or ovulation.

Is there reason to believe that a woman exposed to DES-type drugs before birth should avoid taking birth control pills? If so, what is recommended to prevent pregnancy?

No reason has been found for such women to avoid the use of birth control pills, but the long term effects of these pills are not known. Other standard means of contraception can be used.

When a woman has adenosis or other irregularities associated with DES-type drugs, does sexual intercourse cause any irritation to the tissue or have any effect on the tissue?

As far as is known at present, intercourse does not affect the glandular tissue that may be present in DES-exposed women.

If a cancer is found, what is the treatment?

Removal by surgery or radiation therapy is

the usual method of treatment. Either one of these forms of treatment may result in the loss of the ability to bear children. However, the cancer can be cured, especially if detected early. In some cases the ability to have intercourse may be retained after surgery. Each patient should discuss these possibilities with her physician.

Does a DES-type drug have a permanent effect on the mother who took it?

There is no known effect on the mother.

How often should a DES-exposed daughter be examined?

The frequency of examination depends upon what is found during the initial examination. In some cases a daughter may be asked to return in three to four months. In other cases, examination every six months or even once a year may be appropriate. The longest time between examinations should be one year.

DES-exposed daughters are, like all women, subject to the development of other forms of cancer during their lifetimes. Women should begin the practice of monthly breast self-examination in their teens. Women over the age of 18 should begin to have an annual Pap test for cancer of the cervix. Tests for cancers of the large bowel and breast should be included in the annual health checkups of women in their forties and older.

DES-TYPE DRUGS THAT MAY HAVE BEEN PRESCRIBED TO PREGNANT WOMEN

Nonsteroidal Estrogens

Benzestrol	Mikarol
Chlorotrianisene	Mikarol forti
Comestrol	Milestrol
Cyren A	Monomestrol
Cyren B	Neo-Oestranol I
Delvinal	Neo-Oestranol II
DES	Nulabort
DesPlex	Oestrogenine
Diethyl	Oestromenin

Dibestil	Oestromon
Dienestrol	Orestol
Dienoestrol	Pabestrol D.
Diethylstilbestrol	Palestrol
Dipalmitate	Restrol
Diethylstilbestrol	Stil-Rol
Diphosphate	Stilbal
Diethylstilbestrol	Stilbestrol
Dipropionate	Stilbestronate
Diethylstilbenediol	Stilbetin
Digestil	Stilbinol
Domestrol	Stilboestroform
Estilben	Stilboestrol
Estrobene	Stilboestrol DP.
Estrobene DP.	Stilestrate
Estrosyn	Stilpalmitate
Fonatul	Stilphostrol
Gynben	Stilronate
Gyneben	Stilrone
Hexestrol	Stils
Hexoestrol	Synestrin
Hi-Bestrol	Synestrol
Menocrin	Synthoestrin
Meprane	Tace
Mestilbol	Vallestril
Methallenestril	Willestrol
Microest	

Nonsteroidal Estrogen—Androgen Combinations

Amperone	Teserene
Di-Erone	Tylandril
Estan	Tylosterone
Metystil	

Nonsteroidal Estrogen—Progesterone Combination

Progravidium

Vaginal Cream—Suppositories with Nonsteroidal Estrogens

AVC cream with Dienestrol
Dienestrol cream



Tubes for Middle Ear Ventilation: When, Why, and How

James J. Pappas, M.D.* and Sharon S. Graham, M.A.*

Introduction

It has now been over two decades since the first tube was placed through the tympanic membrane for middle ear ventilation. During this period, many different tube designs have emerged. Also, varying ideas regarding the discretionary use of tubes have developed. Statistics gathered during five years' experience using ventilation tubes in 1,460 ears support the continued conservative use of ventilation tubes in middle ear effusion.¹ Based on this large sample, indications for the use of middle ear ventilation tubes are discussed as well as the minimal complications encountered in the use of this procedure.

History

The first artificial tube for ventilation of the middle ear was reported in 1954.² This was a vinyl tube used by Armstrong in a case of chronic secretory otitis media in an effort to maintain an opening in the drum so that repeat myringotomy would not be required. The earlier tubes were removed within two to three weeks, and the myringotomy incision usually closed within a week. Since 1954, many otologists have developed and modified their own tubes of various sizes and shapes. (Figure 1)

Prior to the use of tympanostomy tubes, various techniques were tried in order to aid the ventilation process of the middle ear. Semi-

permanent openings of the tympanic membrane were created. Bouginage of the eustachian tube and middle ear was done. Aspiration of the middle ear fluid was performed through a 20 gauge needle. Extreme measures during World War II with Japanese and German pilots included creating some permanent perforations with the use of hot cautery and creating permanent middle ear ventilation by removing the entire tympanic membrane. Both before and since the advent of ventilation tubes, when patients have failed to respond to usual conservative treatment for middle ear effusion, additional measures have included autogenous vaccine, steroids and more radical treatment in the form of deep x-ray or radium treatment of the nasopharynx and simple or modified radical mastoidectomies.

The idea of middle ear ventilation by artificial tubes was not accepted by everyone. Some pointed out that the tube procedure could cause cholesteatoma implants and other complications; however, several innovators were interested and willing to develop this technique further. This procedure has now been in use for over twenty years, a length of time sufficient to demonstrate the significant benefits derived, as well as the minimal complications encountered, when used conservatively.

Indications

The primary indication for a patient undergoing a myringotomy with ventilation tube procedure is blockage of the eustachian tube with formation of middle ear effusion that does not respond to conservative treatment. We agree with Pratt et al.³ that the placement of a ventilating tube is not always a benign procedure and that complications have resulted from this procedure. For this reason the myringotomy with insertion of ventilating tube is not performed if it is felt that the middle ear effusion can be treated and eliminated by conservative measures. These conservative measures may include the use of antihistamines, decongestants, eustachian tube inflation, and, when indicated, allergy workup, antibiotics, or short courses of steroid therapy.

Most of the patients who are diagnosed as having chronic secretory otitis media with

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Figure 1.

A variety of middle ear ventilation tubes is shown in comparison to the size of a U. S. dime.

effusion present with the chief complaint of hearing loss or stopped up feeling in the ears. Autophony, tinnitus, and a feeling of fullness are common complaints. Pain and/or earache are not a frequent complaint. Small children who can give no history are usually irritable, pulling at the involved ear or apparently not responding to normal sounds according to the parents.

The majority of patients who are old enough to receive routine audiometric studies are found to have a conductive loss or conductive component of 20 decibels or greater. In recent years, the use of impedance audiometry, including tympanometry and reflexometry, has proven an invaluable tool in the assessment of middle ear function in patients from infancy through adulthood. In the early or resolving stages of fluid formation, tympanometric findings show a negative middle ear air pressure indicating eustachian tube blockage. In the presence of fluid, non-compliant tympanometric tracings, as well as absent stapedia reflexes, are found.

The most common findings related to the chronic eustachian tube obstruction and middle ear effusion are: 1. hypertrophied adenoids with or without tonsil hypertrophy. 2. nasopharyngeal and upper respiratory infections. 3. nasal allergy with swelling of the eustachian tube orifice. 4. scarring and malfunctioning of the eustachian tube in the presence of cleft palate. 5. atelectatic middle ear with retracted tympanic membrane. 6. edema of the eustachian tube associated with hypogammaglobulinemia. 7. neoplasm in the nasopharynx.

The single largest group of patients in this study had their myringotomy with indwelling tube insertion because of middle ear effusion due to enlarged adenoids with or without associated tonsil hypertrophy. Many studies reveal that this is a primary cause of serous otitis media, and it is a common indication for the indwelling tube procedure. Adenoidectomy or T&A are commonly performed in association with myringotomy and tube insertion.

Nasopharyngeal and upper respiratory infections are also common causes of eustachian tube obstruction, resulting in middle ear effusion. The inadequate use or misuse of antibiotics in these cases is reported to be one cause of serous otitis media, especially in children.

Through accompanying workups, a large number of children are found to have nasal allergies.

Many of these allergic children require more than one myringotomy with tube procedure.

The cleft palate patients all have had surgical repair of the palate in early childhood. Most of these patients have abnormally retracted eardrums in addition to middle ear fluid. Most of these cleft palate patients still have their tonsils and adenoids, and in most cases there is hypertrophy of this lymphoid tissue.

Atelectatic middle ears with retracted drums but no middle ear fluid respond well to middle ear ventilation by an artificial tube. In many cases a retracted drum resumes a more normal appearance, and the patients have improvement of their conductive hearing loss.

Only one patient with known hypogammaglobulinemia has had a myringotomy with tube insertion; management of this case has been extremely difficult. Children deficient in gammaglobulin have a higher incidence of upper respiratory infections with associated eustachian tube obstruction and middle ear effusion.

Neoplasms in the nasopharynx which cause eustachian tube obstruction are known causes of middle ear effusion. Patients with such neoplasms can continue having middle ear difficulty after surgery or radiation therapy because of scarring and edema of the eustachian tube orifice.

Method & Results

Over a five year period, 1,460 myringotomies with middle ear ventilation tubes have been performed. The incision is routinely made in the lower half of the drum. (Figure 2) Due to the importance of a snug fit, the length of the incision is determined by the type of tube to be placed. A microscope is routinely used; every attempt is made to have the myringotomy opening dry before tube insertion. Fluid is aspirated through a suction tip which is chosen according to the fluid consistency.

Patients are followed at regular three to six month intervals while the tubes are in place. Tubes are usually allowed to self-extrude. All types of tubes will eventually self-extrude, even those with modifications to delay extrusion.

Myringotomies with tube insertion have been

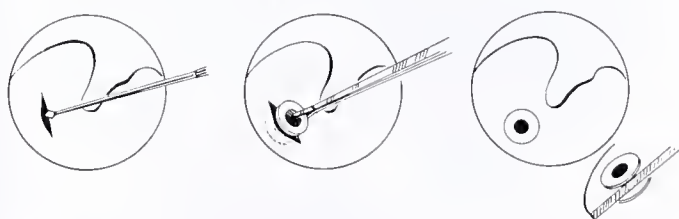


Figure 2.
Myringotomy incision with insertion of ventilation tube.

performed on infants as young as two months old as well as on octogenarians; thus, all age groups have benefitted from the procedure. However, the most common age group for the procedure is four to six years; seventy percent of the patients are children eight years of age or younger. (Figure 3)

Complications

Essentially, two complications are experienced, although minimally. These are recurrent infection and permanent perforation.

Tubes should be inserted under sterile conditions. Infections following tube insertion are uncommon if the patient is careful to keep contaminants from getting in the middle ear through the tube. Infections, when they do occur, are treated with antibiotic otic drops. The tube has to be removed when the infection persists and fails to respond to treatment. Following removal, the infection usually subsides, but antibiotic otic drops are continued another seven to ten days.

Permanent perforations can occur following infections, and rarely these openings fail to heal spontaneously even after the tube is removed and the infection is clinically controlled. Another cause of a permanent perforation is an atrophic drum with loss of the fibrous layer that fails to heal either when the tube self-extrudes or when the tube is removed after determining that it has been in place for sufficient length of time. Less than 1% of the 1,460 myringotomies performed

have resulted in permanent perforations.

One of the criticisms leveled at the indwelling tube procedure, especially in the early days of the procedure, was that squamous epithelium might be introduced by the tube into the middle ear, causing the formation of cholesteatoma; however, findings have not revealed cholesteatoma as a complication.

While premature self-extrusion is not a complication in the true sense, it is a shortcoming of this procedure. Many times it is desirable for the tube to stay in place for a long period of time. Premature self-extrusion can result in recurrence of symptoms and necessitates repeat myringotomy with tube insertion. Repeat myringotomy procedure has been necessary in 15% of the patients studied over a five year period.

Summary

Middle ear ventilation and drainage tubes in various forms have been used for over twenty years. (Figure 1) The effectiveness of these tubes in indicated cases has withstood the test of time. Even though ventilation tubes eventually will extrude, and thus are not permanent, the indwelling tube concept has value in that tubes prevent the more serious effects of chronic eustachian tube obstruction, while allowing time to investigate and treat the underlying pathology. Hearing is also preserved at a normal or at least improved level during this period.

The indications and advantages of middle ear ventilation tubes have been enumerated. While they have proven their value, these tubes are not the panacea for middle ear problems. Additional research and work is needed to find the cause and cure for chronic eustachian tube obstruction. Complications encountered with middle ear ventilation tubes are infrequent infections and less than 1% permanent eardrum perforations. Middle ear cholesteatoma has not been a result of tube insertion. The beneficial effects of indwelling tubes far exceed the detrimental effects of complications; however, use of indwelling tubes should continue to be discretionary following more conservative measures.

BIBLIOGRAPHY

1. Pappas, J. J.: Middle Ear Ventilation Tubes. *The Laryngoscope*, 84: 1098-1117, 1974.
2. Armstrong, B. W.: A New Treatment for Chronic Secretory Otitis Media. *Arch. Otolaryngol.*, 59: 653-654, 1954.
3. Pratt, L. L., and Murray, J.: The Placement of Middle Ear Ventilation Tubes: Some Indications and Complications. *The Laryngoscope*, 83: 1022-1026, 1973.

AGE AT INITIAL PROCEDURE

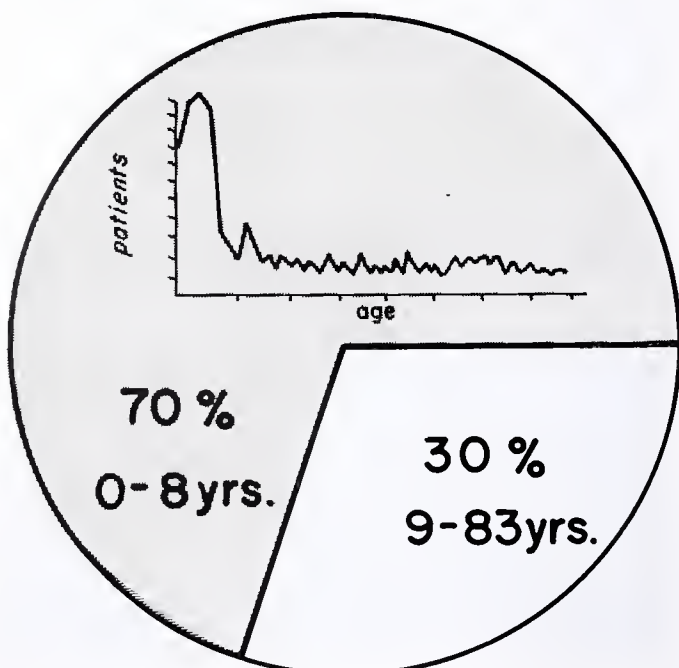


Figure 3.
Seventy percent of patients undergoing myringotomy with tube insertion were children 8 years of age or younger.

Office Orthopaedics

Fractures of the Os Calcis

C. Frank Dodson, Jr., M.D.*

Although the calcaneus (os calcis) is relatively infrequently fractured, of all the tarsal bones, it is most subject to fracture. Os calcis fractures are frequently associated with considerable disability, during both the acute and chronic phases of the injury. Most os calcis fractures occur when the patient falls or jumps from a height, landing with his weight concentrated on the heels. Interestingly enough, these falls do not have to be from excessive heights; most authorities stating these fractures should be suspected in any fall of greater than two feet.

Although many different classifications of the calcaneal fractures have been devised (Essex-Lopresti,³ Rowe,⁸ and Böhler),¹ we will attempt to present a simplified form of classification in order to avoid the confusion attendant with complex systems. This is appropriate, since there is good agreement among the notable authorities on the treatment of the various types of extra-articular calcaneal fractures—but highly divergent opinions exist concerning the most efficacious treatment regimen of the displaced intra-articular fractures.

EXTRA-ARTICULAR FRACTURES

Each of these fractures usually results from a similar type of injury, although there are small variables which may be elucidated by careful history taking. However, in many cases the exact mechanism of injury is unknown to the patient, who usually can define the mechanism of injury only by saying that he fell and landed on his foot or "twisted his foot." As a group, these fractures can be considered to have a favorable

long-term prognosis; and unless markedly displaced, may be treated non-operatively. Many authors point out that these rather subtle fractures of the calcaneus are some of the most

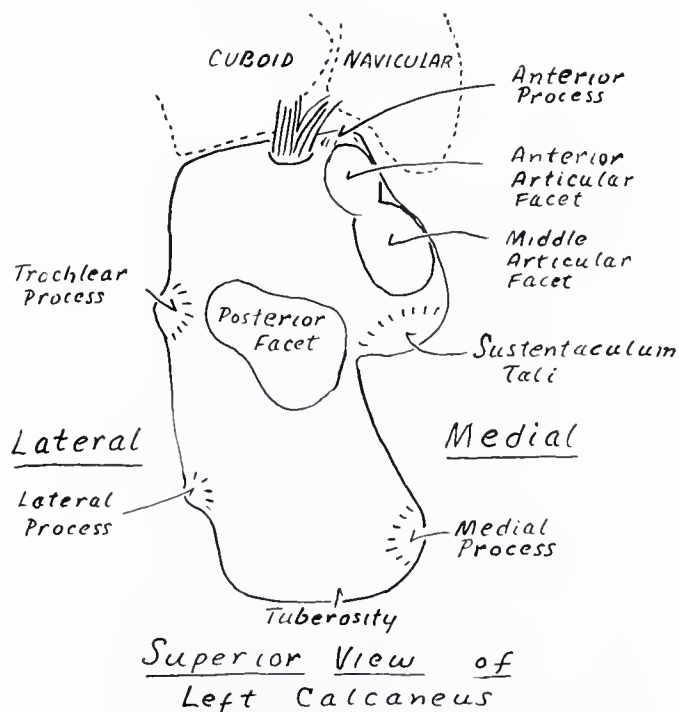


FIG. 1

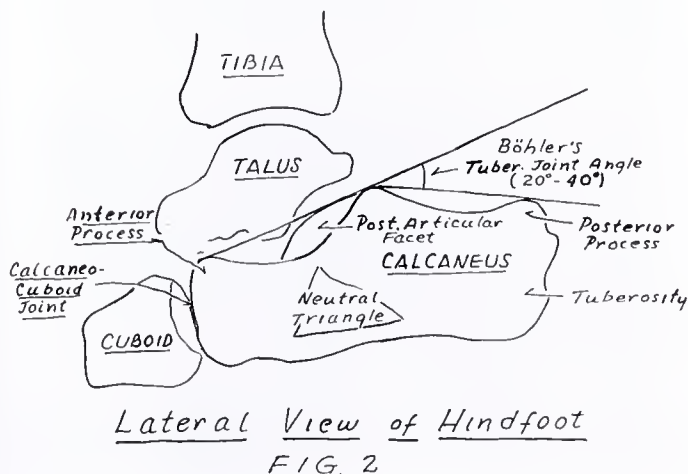


FIG. 2

*Little Rock Orthopedic Clinic, P.A., P. O. Box 5270, Little Rock, Arkansas 72205.

frequently misdiagnosed, and many are initially misdiagnosed as simple ankle sprains. A high index of suspicion and appropriate x-ray views are necessary for proper diagnosis. Radiographic evaluation of suspected os calcis fractures should include dorso-plantar, lateral, and axial views of the hindfoot, and occasionally oblique views to demonstrate unusual fractures.

FRACTURE OF THE ANTERIOR PROCESS:

This is an uncommon fracture which probably is an avulsion fracture at the point of attachment of the bifurcate ligament, occurring when the foot is hyper-adducted and plantar-flexed. This fracture is frequently misdiagnosed as a sprain, since the point of maximum tenderness is over the sinus tarsi, and thus is mistaken for a sprain of the anterior fibulo-talar ligament. These fractures are best treated with elevation, ice, and compression for a few days, and then weight bearing as tolerated. If symptoms persist, and a painful non-union is present after six months, the fracture fragment may be surgically excised to relieve symptoms.

FRACTURE OF THE POSTERIOR PROCESS (INSERTION OF THE ACHILLES TENDON):

This is also an uncommon fracture which usually results from a fall in which the patient lands with the knee extended and the ankle dorsiflexed. The clinical signs of this fracture include weak active plantar-flexion of the ankle, which results in a limping gait secondary to weak push-off. If these fractures are relatively undisplaced, they also can be treated with ice, compression, and elevation for a few days, and then application of a short leg cast, with the patient kept non-weight bearing for approximately six weeks. However, if the fracture is significantly displaced, open reduction and internal fixation are indicated, to be followed by eight weeks of casting. Prognosis for these fractures is quite good.

FRACTURE OF THE SUSTENTACULUM TALI:

This is a very rare fracture, and clinical examination is very important in diagnosis, as there is very little tenderness over the heel, but pain is produced inferior to the medial malleolus by passive extension of the great toe, as the flexor hallucis longus glides on the fractured process. Appropriate treatment includes elevation and ice until swelling is reduced, then the patient may be mobilized non-weight bearing on

crutches for approximately eight weeks; the long-term prognosis is favorable.

FRACTURE OF THE TUBEROSITY:

If the fracture is relatively undisplaced, these fractures heal rapidly and may be treated with only compression dressing initially, followed by a well-molded short leg cast for four weeks with non-weight bearing crutch ambulation. Usually little disability results in the properly diagnosed and treated fracture of this type.

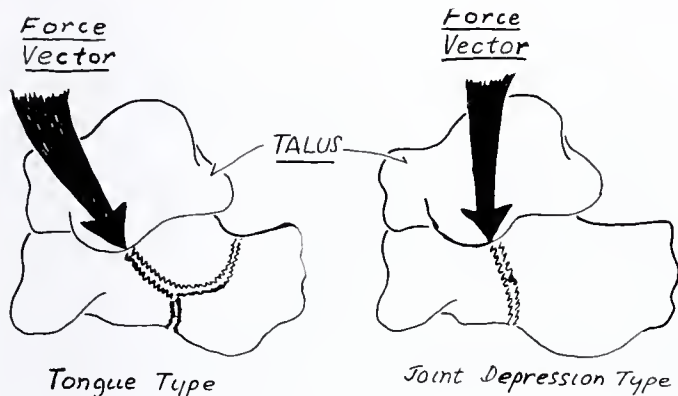
FRACTURE OF THE MEDIAL OR LATERAL PROCESSES OF THE TUBERCLE:

These are extremely uncommon fractures and result from a fall in which the patient lands on his foot inverted (to sustain a fracture of the lateral process) or everted (to sustain a fracture of the medial process). Treatment for these fractures is elevation and compression, followed by early non-weight bearing motion of the heel. If displaced, an attempt at closed reduction may be made and application of a well-fitted cast should be considered, to be followed by non-weight bearing for eight weeks.

FRACTURES OF THE BODY OF THE CALCANEUS, NOT INVOLVING THE SUBTALAR JOINT:

Signs and symptoms of this injury include generalized pain and swelling about the heel and inability of the patient to bear weight on his heel, along with tenderness over both the medial and lateral aspects of the heel. The most revealing x-ray view of this type fracture is the lateral, however, the axial view is necessary to rule out an intra-articular component. Opinion is somewhat divided as to the best method of treatment of these fractures, especially if they are significantly displaced. Most authorities seem to agree that the non-operative treatment with compression, elevation, and ice packs for the first few days, and then begin early motion of the foot and ankle as soon as tolerated, emphasizing hourly motion of these joints and keeping the patient non-weight bearing for eight to twelve weeks is an acceptable treatment regimen, and in general, yields good results. There is more diversity of opinion as to proper management if the fracture is displaced, and some experts recommend reduction of the displacement, utilizing a percutaneous Steinmann pin inserted into the major fragment as lever to achieve reduction and then incorporating this pin in a short leg cast and keeping the patient non-weight bearing for

approximately eight weeks (Böhler method).¹ One late complication of this fracture may be persistent edema, and Giannestras⁵ recommends fitting with a Blucher shoe while others indicate that support hose or elastic bandage compression is satisfactory. Although the prognosis depends somewhat upon a configuration of his fracture and the amount of displacement involved, the prognosis in these fractures is good, especially when compared to that of the intra-articular type.



Basic Types of Intra-articular
Fractures as Seen in the Lateral View
FIG. 3

INTRA-ARTICULAR FRACTURES

This type fracture of the calcaneus comprises approximately 60% of all tarsal injuries and 75% of all calcaneal fractures according to Cave.² Most authors feel that the subsequent development of degenerative arthritis in the subtalar joint is more likely a possibility if the fracture is highly comminuted and/or significantly displaced. Böhler¹ has strongly admonished restoration of the tubercle angle (Figure 2) (normal, between 20 and 40 degrees) in order to avoid development of poor gait, secondary to a loss of push-off power. Displacement, which results in transverse widening of the calcaneus, may result in peroneal tendonitis as impingement on the tendons occurs between the lateral aspect of the calcaneus and the medial aspect of the lateral malleolus. As previously mentioned, there are several highly divergent methods of treatment advocated by various authorities; however, there is general agreement that there is no obviously superior mode of treatment, as many of these fractures result in permanent physical impairment to the patient regardless of the treatment modality employed. Apparently, the non-

operative treatment—utilizing early elevation, ice, and compression until swelling and tenderness are diminished, and then the initiation of early vigorous motion while the patient is kept non-weight bearing for eight to twelve weeks—is a relatively safe method of treatment yielding as good or better results than other more aggressive types of treatment. Other methods of treatment include the Böhler¹ technique which utilizes a percutaneous Steinmann pin in the major fracture fragment used as a lever to achieve reduction and the casting with the pin left incorporated into the cast. Another method is the Palmer⁹ technique which is essentially an open reduction and bone graft to restore normal articular surfaces and six to eight weeks of subsequent casting. Gallie and Harris⁴ have advocated treatment of these difficult fractures by performing early (within the first two weeks) subtalar arthrodesis. Others have advocated early triple arthrodesis. The Essex-Lopresti³ method combines both operative intervention and early mobilization principals and seemed to produce satisfactory results for its advocate.

Regardless of the treatment method used, the patient with a fractured os calcis may be subject to any of several late conditions resulting in long-term disability. The most frequent problem is persistent swelling and edema around the heel; this is present in most calcaneal fractures, and may persist up until one year after injury and is treated with the usual methods of compression or a well-fitted Blucher shoe. Subtalar arthritis may be treated with intra-articular injections of local anesthetics and steroids; however, if symptoms become persistent, a triple arthrodesis may be required. Stenosing tenosynovitis of the peroneal tendons resulting from a non-passage between the lateral aspect of the calcaneus and the medial surface of the lateral malleolus may respond to local injections, but if severe, may require bone resection. Exuberant callus formation may result in bony projections from the calcaneus which causes painful callouses, and likewise, these may require resection. Scar formation from the soft tissue damage to the fibro-fatty heel pad may lead to persistent plantar heel pain and may, occasionally, be relieved with a molded heel cup or heel cushion. Occasionally pain and rigidity from the ankle to the toes may be encountered in cases where immobilization was prolonged. Giannestras⁵ states that in selected

patients, selective denervation of the heel may offer relief of persistent symptoms.

In summary, adequate treatment of calcaneal fractures requires alertness for detection, and may require special x-ray views to delineate the problem. Early diagnosis is universally felt to be requisite for the initiation of early and appropriate treatment, which is the patient's only real hope of obtaining a satisfactory result. Another important phase of early treatment is suspicion for injuries, especially fractures of the dorso-lumbar spine and other injuries to the same lower extremity. Regardless of the definitive mode of therapy, os calcis fractures are best served initially by elevation, ice packs, and a well-padded compressive dressing.

BIBLIOGRAPHY

1. Böhler, Lorenz: *The Treatment of Fractures*. Grune & Stratton, 1958.
2. Cave, E.: *Fractures of the Os Calcis*, The General Problem. Clin. Ortho. 30:64, 1963.
3. Essex-Lopresti, P.: Mechanism and Reduction, Technique and Results in Fractures of the Os Calcis. *British J. Surgery* 39:395, 1952.
4. Gallie, W. E.: Subastragalar Arthrodesis in Fractures of the Os Calcis. *Journal of Bone & Joint Surgery* 25:731, 1943.
5. Giannestras, N. J.: *Foot Disorders, Medical & Surgical Management*. Lea & Febringer, 1973.
6. Lance, E. M., Carey, E. J., and Wade, P. A.: Fractures of the Os Calcis: Treatment by early mobilization. Clin. Ortho. 30:76, 1963.
7. _____: A Followup Study. *Journal of Trauma*, 4:15, 1964.
8. O'Connell, F., and Rowe, C. R.: Evolution of Modern Management of Fractures of the Os Calcis. Clin. Ortho. 83:214, 1972.
9. Palmer, I.: The Mechanism and Treatment of Fractures of the Os Calcis. Open Reduction with Use of Cancellous Grafts. *Journal of Bone & Joint Surgery* 30A:2, 1948.
10. Rockwood, C. A., and Green, D. P.: *Fractures*. J. B. Lippincott Co., 1975.

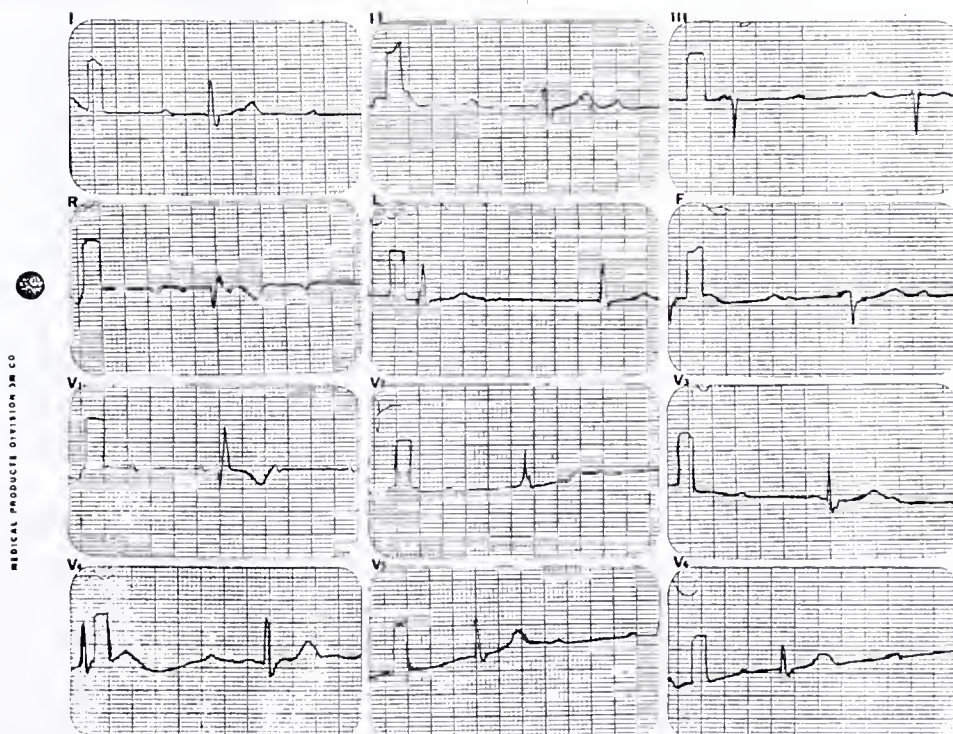
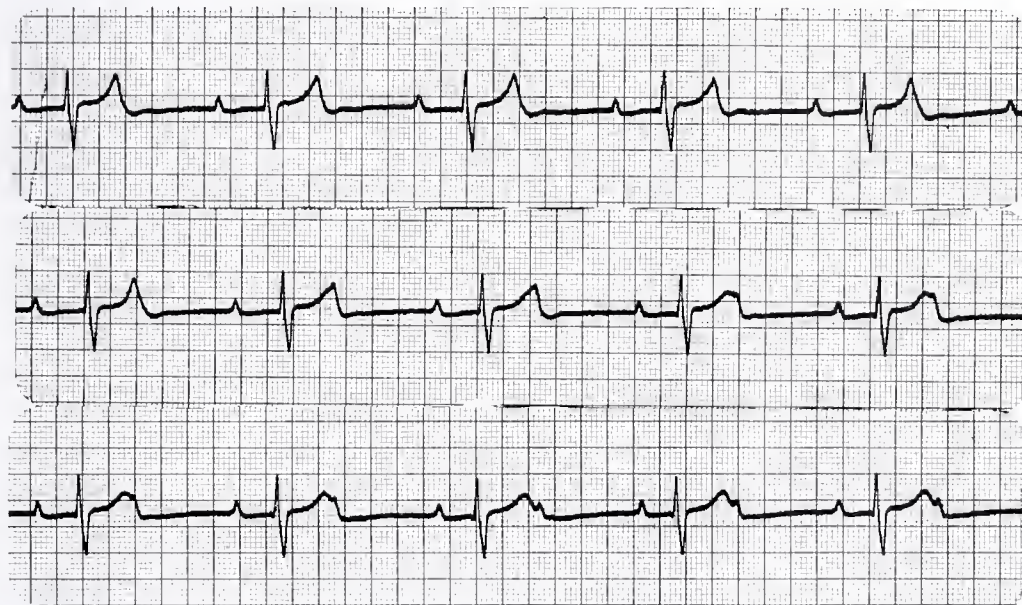




The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 326)

84-year-old female admitted with one month history of weakness and the following rhythm strip. What is the rhythm? (The strips are not continuous but were all recorded during one minute).



Mary Richards, M.D., Assistant Professor, Division of Cardiology
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Little Rock, Arkansas 72201



Arkansas' Blood Alcohol Testing Program

*Mrs. Gay Frances Horn, BSE, Chemistry**

More and more Arkansans are becoming acquainted with the role of the Arkansas Department of Health in connection with Driving While Intoxicated arrests. Unfortunately, their introduction is usually traumatic for both them and their families. It can be costly and distressful. A better informed citizenry would no doubt result in a safer, healthier environment for us all.

What exactly, happens to a person arrested for suspected DWI?

First, a law enforcement officer observes a driver doing something abnormal; something which causes him to suspect a possible DWI. He then apprehends the suspect, making further observations as to his behavior, speech, appearance, movement and other observable factors. He may ask the subject to perform certain physical tests and will record his observations for future use. The officer may also question him about any possible medical problems or medication.

If the officer judges this subject to be "under the influence" he will then advise the subject that he is under arrest and he will be asked to submit to a test to determine the alcohol content of his blood. The officer will advise the subject that if he refuses to submit to the test he will be subject to losing his driver's license or the right to obtain one for a period of six months. Unless the subject is injured, this test will almost always be made on a sample of his breath. Otherwise, the test is usually on a sample of blood. The breath test is designed to measure indirectly the alcohol concentration in the blood.

To set the scene at the local police department or sheriff's office where the breath test will be made, the following activities have been taking

place on a routine schedule beginning as far back as 1970. A department is certified by the Arkansas Department of Health by having had at least one officer successfully complete a forty-hour course of instruction given by the Health Department on the use of his approved breath testing instrument. His training includes the effects of alcohol on the human body, the required record keeping, operation and maintenance of the instrument, Arkansas laws, court decisions and other related matters.

This certified installation must of course, own and maintain one of the approved instruments. To assure that the instrument is maintained properly and that it gives accurate readings, the Division of Blood Alcohol at the Department of Health tests each instrument five times during a regular three month period; three times by mail and twice while visiting the installation. In addition, the installation is required by the "Arkansas Rules and Regulations for Blood Alcohol Analyses" to make a calibration check on the instrument once each day it is used and to keep a record of this calibration.

The question then arises, "How would the apprehended suspect know whether all requirements for certification have been met at any one point in time?"

Every certified law enforcement officer has been issued a certificate with current dates (there is an expiration date on each one). In addition to these certificates, which are usually on display near the breath-testing instrument, there must also be a current certificate for the instrument itself. The latter is issued at least once every three months, based upon the testing of the instrument previously described. If the instrument is not operating, found to be inaccurate or certified personnel are not available, the use of the instrument is officially suspended

*Arkansas Department of Health, Director, Division of Blood Alcohol, 4815 West Markham, Little Rock, Arkansas 72205.

until such time as the deficiency is corrected. Notification of suspensions are sent to all appropriate courts.

There are other requirements placed upon these installations, all directed toward establishing and maintaining a scientifically accurate, reliable system of testing and prosecuting DWI offenders.

In addition to the test we have been talking about to this point, the law enforcement officer is required by Arkansas Statutes to advise the subject of his right to a test of his own. The officer will assist to an undefined extent, the subject's efforts to secure someone (physician, qualified technician, registered nurse or other qualified person) to administer the second test. This usually amounts to the drawing of a blood sample which is then analyzed by any qualified laboratory. Depending upon the time expired between the two tests and other possible variables, the results of the two tests should be in close agreement. The normal range of alcohol concentration found in the blood stream is 0.00% to 0.50% although some results have been re-

corded higher.

Arkansas law establishes the following presumptive levels of alcohol in the blood:

0.00%-0.05%	presumed not to be under the influence of alcohol for driving
0.06%-0.09%	no presumption of alcoholic influence, but results may be considered along with other competent evidence
0.10% & above	presumed to be under the influence of alcohol for driving

To establish some approximation of the amount of alcohol required to reach a certain level of blood alcohol percent, let us consider a man of 150 lbs. A 12 oz. beer (4% alcohol) or 3 oz. of wine (12% alcohol) or 1 oz. of liquor (45% alcohol) would raise his level to 0.02% on an empty stomach. Five times that amount in one hour would bring him up to 0.10%. His body will eliminate about 0.015% per hour. Therefore, it would take three more hours to bring him down to 0.05% or less; and to drive before that point is to risk his own life and all of those he meets.



EDITORIAL

A Degree of Certainty

Alfred Kahn, Jr., M.D.

A degree of certainty is a spectrum running from a speculative diagnosis through the realm of presumptive diagnosis right up to the border of a proved or established diagnosis. A proved diagnosis by Koch's postulates is immutable. Of great importance is the realization that speculative and presumptive diagnoses are ever changing. The most experienced clinical cardiologist of 20 years ago cannot compete with the well trained resident of today in making diag-

noses of arterio-sclerotic heart disease. The altered pattern of the questionably positive electrocardiographic tracing lacks the absolute finality of a coronary arteriogram revealing no disease—or vice versa—or the confirmatory assurance of a correct clinical interpretation.

Proper employment of appropriate new instrumentation lends an irresistible weight of evidence to the better understanding of disease. Indirect evidence and non-invasive techniques

are desirable but direct visualization is often necessary. A shadow on an x-ray film that may appear to be a peptic ulcer may in fact be a carcinoma. A gastroscopy with a biopsy does not suffer from presumptions which even the finest radiologist must make in the interpretation of a film.

All of this is not to decry the use of wisdom, intuition, and common sense in the approach to a patient's diagnosis—these things are fundamental. The big question is—what degree of certainty can the practicing physician expect without invasive techniques or elaborate instruments? Posed differently, can the careful neurologic test compete with reasonable certainty with the axial computerized tomography of the brain—not an invasive test but certainly a very elaborate instrument? Taking this reasoning one step further, to what degree is the physician willing to stake his medical acumen against more refined methods which offer a certainty of result that cannot be otherwise achieved. It is this latter confrontation that drives more and more physicians into circumscribed specialties and subspecialties where he or she can master equipment that will produce an irrefutable answer.

What is the arena of the non-sub-specialist? It is the degree of uncertainty that the public and the physician himself is willing to accept. There is a rather large area of conventional medicine readily attached by deductive and inductive reasoning readily applied by the generalist. It is the borderline of this territory that is the area of concern. What are the danger signals that herald the need for a more refined technique to establish the right answer? Should, for example, asymptomatic cases be submitted to a stress test? Redwood, Borer, and Epstein in *Circulation* (Vol. 54, p. 803, Nov., 1976) address themselves to this question. They found the stress test was not very reliable in symptom free patients but it had a very satisfactory degree of reliability in symptomatic patients. Thus, how often in the vast field of coronary artery disease should one recommend catheterization? Some indications are quite apparent. However, when one cranks in age and other disabling disease, the indications begin to blur.

Ultimately, the decision as to the degree of certainty that one can and will accept is based on the need for specific therapy, the state of the patient's mind, and public acceptance. Medical

schools are faced with the problem of getting more and more young people into the field of general medicine. The success of this endeavor may depend to a certain extent on the individual's perception of how much he feels that he can accomplish without a certain finality of judgment which he cannot attain in all fields—and which judgment he cannot always draw on from his colleagues because of the constraints of cost, distance, and time.



HENRY A. CRANE, JR., M.D.

Dr. Henry A. Crane, Jr., gynecologist from Monticello, was killed in a hunting accident on November 11, 1976. Dr. Crane was a former resident of Pine Bluff and was in limited practice due to serious injuries received in an automobile accident.

He was a graduate of the University of Arkansas Medical School and a member of the Drew County Medical Society, the Arkansas Medical Society, American Medical Association, and the American College of Obstetrics and Gynecology.

Dr. Crane is survived by two sons, Steven Crane of New Orleans and Paul Crane of Pine Bluff; two daughters, Marilyn Crane and Carol Crane of Pine Bluff; and his mother, Mrs. Anna Bell Crane of Fountain Hill.

ANSWER—Electrocardiogram of the Month

The patient is in complete heart block. In the first strip the atrial rate is twice the ventricular rate and they are fortuitously related. The second P wave is hidden in the peaked T wave. In the second and third strips there has been slight slowing of the sinus rate and the P wave that was hidden in the T wave starts to show on the end of the wave. Also, the interval from the P wave to the QRS shortens. The ventricular rate does not change. The complete heart block can also be seen on the patient's 12 lead ECG mounted below. The QRS pattern of RBBB and horizontal axis, suggests that the site of the ventricular focus is in the Left Bundle Branch or in the His bundle with a possible pre-existing RBBB.

MEDICINE IN THE



THE MONTH IN WASHINGTON

The steady flow of the Potomac River towards the sea is just about the only visible activity these days in the Federal City. People in the government sit and wait. The Congress is gone, the Presidency is up for grabs, and the bureaucrats are not even wiggling their toes for fear of rocking the boat.

* * * *

The post-Watergate 94th Congress, on paper

the most liberal Congress in recent history, refused to adopt any major new federal ventures into the health field.

Nor did the lawmakers vote to impose added controls on providers in an effort to get a handle on soaring costs.

Here is the final status of selected major health and health-related legislation in the 94th Congress:

<i>Subject; Number</i>	<i>House, Senate Action</i>		<i>Conference</i>	<i>Presidential Action</i>
	<i>Committee</i>	<i>Floor</i>		
1) Manpower HR 5546 S. 3239	6/7/75 5/14/76	7/11/75 7/1/76 (HR 5546)	Completed; sent to White House	P.L. 94-484
2) HMO Amendments HR 9019 S. 1926	8/26/75 5/13/76	11/7/75 6/14/76 (HR 9019)	Completed; sent to White House	P.L. 94-460
3) CLIA HR 14319 S. 1737	9/8/76 4/26/76	— 4/29/76 (Died)		
4) Indian Health HR 2525 S. 522	4/9, 5/10, 5/12/76 5/13/75	7/30/76 (S. 522) 5/16/75	Avoided; sent to White House	P.L. 94-437
5) EMS (and biomedical research) HR 12664 S. 2548	5/5/76 5/14/76	8/24, 10/1/76 6/10, 10/1/76 (S. 2548)	Avoided; sent to White House	P.L. 94-573
6) HEW Appropriations HR 14232 Senate-HR 14232	6/8/76 6/26/76	6/24/76 6/30/76	Completed; sent to White House; Vetoed	Veto overridden; P.L. 94-439
7) Lobby Reform HR 15 S. 2477	9/2/76 4/26/76	9/21/76 (Died) 6/15/76		
8) Admin. Rule-making HR 12048 S. 3297	4/6/76 Pending	Suspension vote failed (Died)		
9) Medicare, Medicaid Reform Act HR 13080 S. 3205	Pending Pending	(Died)		

10) NHI			
HR — various	Pending	(Died)	
S. — various			
11) HEW Inspector			
General (rider)	—		
HR 11347		9/29/76 (House)	None needed; sent P.L. 94-505
		9/28/76 (Senate)	to White House

Two important bills bit the dust. One, the Clinical Laboratory Improvement Act, would have set up strict federal standards and licensing for clinical laboratories. The other, the Medicaid Fraud and Abuse Bill, would have strengthened the Health, Education and Welfare Department's policing of Medicaid abuse and increased penalties for violations. Both of these bills cleared Senate and House committees, but backers were unable to salvage them in the torrent of last-minute action on legislation.

Squeaking through during the final days were bills to set up an Inspector General at HEW to oversee fraud and abuse, especially in medical programs; to continue federal assistance to help states and localities establish emergency medical systems; and to broaden federal aid for Indian health.

Casualties included bills to impose stricter clean air standards, to revise the lobbying laws to require additional reporting; and to change the way the government issues regulations to carry out laws.

* * * *

The three-year, \$2 billion aid-for-medical education bill has been signed into law by President Ford who said it "virtually assures that no individual will be denied a medical education for financial reasons."

The Health Professions Education Assistance Act creates a new Health Professions Student Loan Guarantee Program and a Loan Insurance Fund through fiscal 1978.

It continues and expands current medical scholarship programs. In return, recipients will be required to serve in a health manpower shortage area for at least two years.

In a statement released with the signing, Ford said a government study had shown "there were alarming signs that this country was facing two growing problems:

- ★ Not enough doctors in rural and inner city areas.
- ★ A continuing decline in the number of doctors practicing primary care because

too many medical students are specializing instead of becoming general practitioners."

The bill requires medical schools receiving government capitation grants to provide annually an increasing percentage of residency positions for individuals in primary care specialties such as internal medicine, pediatrics and family medicine.

The compromise legislation strengthens the National Health Service Corps. Before passage, the measure was stripped of many federal control provisions fought by the American Medical Association.

* * * *

President Ford has also signed into law a bill designed to stimulate establishment and growth of Health Maintenance Organizations (HMO's). Thrust of the new law is to relax many previous restrictions on HMO's including the requirement that they must have "open enrollment" so that everyone could join regardless of health or financial circumstances.

The required benefit package was trimmed slightly, but the final version of the measure retained the requirement that rehabilitative treatment for alcoholism and drug abuse be offered.

The old ban on private physicians participating in an HMO on a part-time basis was lifted.

The law makes it easier for HMO's to receive federal financial assistance.

The AMA had contended that effect of the legislation was to negate the original concept of the HMO as a new type of delivery system open to everyone and to distort the program into a simple subsidy for pre-paid group practice plans.

The new law permits:

HMO's to contract directly with individual practitioners or groups of health professionals that do not qualify as medical groups or individual practice associations provided that the amount of services so contracted for does not exceed 30 percent of the dollar value of the total

physician compensation paid by a rural HMO, or 15 percent of such dollar value in the case of a non-rural HMO.

A previous requirement for medical groups that provide care for HMO enrollees is that the provision of such care must be the group's "principal professional activity". The bill provides that, for a three-year period, the HMO could provide services through medical groups whose members do not offer such services as their principal professional activity. After the three-year period, only medical groups whose members have a substantial responsibility for the delivery of services to HMO enrollees could be utilized. Substantial responsibility is defined as devoting at least 30 percent of the health professional's time to such enrollees.

* * * *

Total spending on health care in this country is estimated to jump from the current \$140 billion to \$223.5 billion in five years, according to an actuarial study prepared for HEW.

The study, which figures to be often-cited during next year's Congressional consideration of National Health Insurance (NHI) proposals, also predicts that any NHI plan will add at least \$10 billion to the overall expenditures on health. The "induced" spending would come from "encouraging more use of health services covered by the plan, adding administrative expenses for the extra insurance and paying for bad debts and charity services," among other factors, the report said.

The spending impact was compared of six major NHI plans—those of the AMA, the American Hospital Association (AHA), the Health Insurance Association of America (HIAA), the Labor-Kennedy forces, Sens. Russell Long (D-La.) and Abraham Ribicoff (D-Conn.), and the Nixon Administration (CHIP).

The Gordon R. Trapnell actuarial firm forecast that the Long-Ribicoff measure focusing on catastrophic expenses would add the least to overall health spending by fiscal 1980 if put into effect next year—\$9.8 billion.

Next on the list was the plan by the health insurance companies—\$11 billion, followed by CHIP, \$11.3 billion; the AMA plan, \$20.3 billion; the Labor-Kennedy Program, \$24.8 billion; and the AHA plan, \$25.1 billion.

The study said Long-Ribicoff, CHIP, and the HIAA plans "tend to use a variety of cost-sharing

mechanisms, limit preventive services to children, and concentrate most of their additional spending on the poor, while the AMA, AHA, and Health Security (Kennedy-Labor) proposals tend to have little or no cost-sharing, provide preventive services to everyone, and increase insurance coverage broadly for the general population."

All six plans would add several billion dollars to the federal health care budget primarily to provide improved health services for the poor. But the range of some \$10 billion (Long-Ribicoff) to \$130 billion (Labor-Kennedy) in additional federal spending reflects largely the extent to which health insurance funds for the general population are funnelled through a federal health insurance mechanism or through private health insurance, according to the report.

Without any type of NHI total spending for personal health services will increase from \$140.4 billion in fiscal 1976 to \$223.5 billion in 1980, the report forecast.

* * * *

The government's powers to move against quack remedies suffered a setback when the Federal Appeals Court in Denver, Colo. recently refused to overturn a District Court decision allowing a cancer patient to buy and transport the questionable anti-cancer product, Laetrile.

The Appeals Court did not rule on the question of whether Laetrile was effective or whether the Food and Drug Administration had the right to bar it from the market. The FDA record on Laetrile was "grossly inadequate," the Court said. "The question whether this is a new drug presents a mixed question of fact and law which should be fully tried," said the Appeals Court. The FDA was ordered to "develop a record supportive of the agency's determination."

The FDA had no immediate comment on the decision. Staff lawyers were unsure how to proceed. However, the Appeals Court muddled the waters on the legal statutes of the controversial drug which has served as a focus for complaints that FDA is overstepping its authority in cracking down on non-authorized drugs or products.

An Oklahoma City District Court judge had ruled earlier that Laetrile was effective and that the FDA was acting unconstitutionally in seeking to prohibit it.

* * * *

The charter class of 32 at the Uniformed Services University of the Health Sciences was

welcomed at ceremonies in Washington, D. C. The five women and 27 men were selected from more than 1,700 applicants.

Authorized by Congress in 1972, the school will prepare physicians to practice medicine for the three military services and the Public Health Service. It has received provisional academic accreditation from the Liaison Committee on Medical Education.

Permanent medical school facilities are under construction at the National Naval Medical Center in Bethesda, Md., near the National Institutes of Health and the National Library of Medicine.

The University students are members of Uniformed Services paid at the level of a Second Lieutenant, Ensign, or Junior Assistant Health Officer in the Public Health Service. In return for their education, graduates will incur a minimum obligation of seven years of medical practice in one of the services.

* * * *



PERSONAL AND NEWS ITEMS

DR. HOLT SPEAKS TO CIVIC LEADERS

Dr. Forney Holt of Hope, recently spoke to the Hempstead County Consumer Health Advisory Committee on diabetes and the importance of its early detection. The group of civic organizations is planning an extensive diabetic screening program to be carried out in Blevins, McNab, Washington, and Hope, Arkansas.

OBESITY HEALTH CLINIC HELD

Drs. Donald D. and Robert H. Weaver instructed a recent course in Obesity Management and Effective Weight Control at Gentry.

CANCER COURSE HELD

Drs. Matthew Jackson, Thomas Jansen, Al Nelson, James Y. Suen, and Kent Westbrook, all of Little Rock, were recently faculty members for a continuing education course on cancer of the lip and face. Dr. Richard H. Jesse of the M. D. Anderson Hospital and Tumor Institute of Houston was the guest lecturer.

AWARD PRESENTED TO DR. JOHNSON

The Jenny Storthz-Martha Allis Pulmonary Disease Award was presented to Dr. Robert D. Johnson of Little Rock. The Trust Fund of \$40,000 was established in 1972 entirely from Christmas Seal money obtained by the Pulaski County Tuberculosis and Respiratory Disease Association to support, in part, a Pulmonary Disease Fellow at the University of Arkansas Veteran's Administration Hospital Complex. Martha Allis and Jenny Storthz were both associated with the Pulaski County Tuberculosis and Respiratory Disease Association for thirty years and were very active in their work. Ms. Allis was Executive Secretary for thirty years and Ms. Storthz was a volunteer and on the Board of Directors.

The purpose of the award is to encourage physicians in training toward developing a special interest and ability in the treatment and prevention of certain pulmonary diseases, and primarily concerned with tuberculosis, bronchitis, and emphysema.

DR. COBB RECEIVED RECOGNITION

Dr. Russell W. Cobb of Malvern has received the American Medical Association Physician's Recognition Award for his participation in Continuing Medical Education. Dr. Cobb was also elected to membership in the American Academy of Family Physicians recently.

AHEC PROGRAM

Neil Ragan, who will graduate from the University of Arkansas College of Medicine in 1977, spent six weeks in Jonesboro training with Dr. Phillip Utley and other Jonesboro physicians. His time in Jonesboro was under the auspices of the Area Health Education Center program of the University of Arkansas College of Medicine.

NEW DOCTOR FOR RUSSELLVILLE

Dr. Nathan Austin has opened offices in the Professional Park Building at 2504 West Main in Russellville specializing in otolaryngology. Dr. Austin is a native of Blytheville and attended

the University of Arkansas. He served his internship and residency at the University of Arkansas Hospital in Little Rock.

UNION COUNTY HEALTH OFFICER

At the November meeting of the Union County Medical Society, recognition was given to Dr. Warren S. Riley for his thirty years service as Union County Health Officer. Dr. Riley has recently retired from this post. The Union County physicians and the Union County Medical Society are quite appreciative and thankful for his years of service.

The new Union County Health Officer will be Dr. James E. Seale, Jr., of El Dorado.

DR. T. H. HOLLIS HONORED

Dr. T. H. Hollis, Family Practitioner of Hot Springs, was named Doctor of the Year by the Garland County Chapter of the Association of Medical Assistants recently. Dr. Hollis has been

in practice in Hot Springs for approximately a year and a half.

Dr. E. K. Clardy's assistant, Mrs. Joan Davis, was named Medical Assistant of the Year at the same banquet.

DRS. POPE AND WILLIAMS ADMITTED TO AMERICAN COLLEGE OF CARDIOLOGY

Two cardiologists associated with Holt-Krock Clinic in Fort Smith, Drs. John R. Pope and Thomas N. Williams, have been granted Fellowships in the American College of Cardiology. The doctors are among a group of 151 from the United States and Canada recently admitted.

DR. LANDRUM ATTENDS TRI-REGIONAL WORKSHOP

Dr. Sam Landrum, Fort Smith, attended the Tri-Regional EMS Workshop held in Albuquerque, New Mexico. Dr. Landrum is chairman of the Arkansas EMS Council and volunteer Acting Medical Director.



THINGS TO COME



SPRING MEETING OF AMERICAN COLLEGE OF SURGEONS

The Spring Meeting of the Arkansas Chapter of the American College of Surgeons will be held at the Arlington Hotel in Hot Springs on March 11-12, 1977.

Dr. Ed Woodward of the University of Florida will be guest speaker. A block of rooms have been set aside for the group members at the Arlington but each individual must make his own reservations.

Dr. Carl L. Williams of 522 South 16th, Fort Smith is Secretary of the Chapter.

SYMPOSIUM ON PHILOSOPHY AND MEDICINE

The fifth Symposium on Philosophy and Medicine, "Clinical Judgment", will be held at the University of California at Los Angeles on April 14, 15, and 16, 1977. For further information, please contact:

H. Tristram Engelhardt, Jr., Ph.D., M.D.
Institute for the Medical Humanities

University of Texas Medical Branch
Galveston, Texas 77550
713-765-2376

UNIVERSITY OF ARKANSAS CONTINUING EDUCATION JANUARY AND FEBRUARY SCHEDULE

January

- 21-22 "Advanced Life Support"
Dr. Dale Morris, Program Director
- 24-26 "Acute Respiratory Failure"
Dr. Charles Hiller, Program Director

February

- No Date "Gynecologic Endocrinology and Set Infertility"
Dr. David Barclay, Program Director
- 10 "Basic Multi-Disciplinary Psychiatric Seminar"
Dr. Robert Matthews, Program Director
Course runs through April 21, 1977
- 24 "Advanced Multi-disciplinary Psychiatric Seminar"
Dr. Robert Matthews, Program Director
Course runs through May 12, 1977
- 25 "Sixth Neonatal Seminar"
Dr. Alice Beard, Program Director

For further information regarding a specific course, call toll free 800-482-9612.

HAIR TRANSPLANT SYMPOSIUM

The American Society for Dermatologic Surgery and the American Academy of Facial Plastic and Reconstructive Surgery are co-sponsoring the Fourth Annual Hair Transplant Symposium and Workshop which is designed to offer an opportunity for the exchange of ideas among various disciplines and to present the latest advances in techniques on hair transplantation.

The conference will be held February 11th and 12th, 1977, at the Stough Dermatology and Cutaneous Surgery Clinic, P.A., Doctors Park, Hot Springs 71901. Attendance will be limited.

Multi-discipline International Faculty will include dermatologists, otolaryngologists, regional and general plastic surgeons.

For further information, contact D. B. Stough, III, M.D., Program Director.

* * * *

ALTON OCHSNER MEDICAL FOUNDATION

The Seventh Annual Postgraduate Course
in Gastroenterology

"SMALL INTESTINE AND COLON:
AN UPDATE"

January 20-22, 1977

Ochsner Medical Institutions

Monroe Hall

Program Director

William D. Davis, Jr., M.D.

Co-Director

Chesley Hines, Jr., M.D.

This seventh annual course in gastroenterology will present up to date information on advances in the understanding of the physiology and the pathophysiology of the small intestine and the colon, as well as disease states of the bowel. Although designed primarily for the generalist, material will be considered in sufficient depth to be of interest to specialists in the fields as well.

Registration Fee — \$125.00

* * * *

"VASCULAR SURGERY — UPDATED"

February 3-5, 1977

Ochsner Medical Institutions

Monroe Hall

Program Director

John L. Ochsner, M.D.

This course is directed toward the practicing general and vascular surgeon and its purpose is to update the practicing surgeon as to the newer developments in vascular surgery. There are to

be short, formal lectures and panel discussions with questions from the audience. There will also be some wet clinics to demonstrate the operative technic of certain procedures.

Registration Fee — \$125.00

Please send all requests for information to:

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504/834-7070, Ext. 5831

* * * *

EMERGENCY MEDICINE:

CLINICAL-RADIOLOGICAL CORRELATION

This interspecialty postgraduate seminar will be presented March 18-20, 1977 at Pointe West Resort in Phoenix, Arizona. Content will be directed to radiologists and emergency room physicians. The course is approved for 14 hours of Category I, American Medical Association credit. Tuition \$110.00.

For further information write to Program Director, Austin R. Sandroock, M.D., Chairman, Department of Radiology, Maricopa County General Hospital, 2601 East Roosevelt, Phoenix, Arizona 85008.

POSTGRADUATE COURSES

"Physician Instructor Course in Advanced Life Support", January 21-22, 1977. This is presented by the American Heart Association and UAMSC Department of Medicine and Continuing Education at the Camelot Inn in Little Rock. Program Director is Dr. Dale Morris, Assistant Professor of Surgery, UAMSC. Sixteen Prescribed Hours credit approved.

Chest Conference will be held the 1st and 3rd Wednesday of each month at St. Edward Mercy Hospital in Fort Smith. Responsible organization is the Area Health Education Center, Dr. John R. Williams is Program Director. Hour for Hour approved prescribed credit.

"Respiratory Failure" on January 24, 25, 26, 1977, is sponsored by the Pulmonary Division UAMSC. Program Director is F. Charles Hiller, M.D. and will be held at Hendrix Hall in Little Rock. Twenty-four prescribed hours.

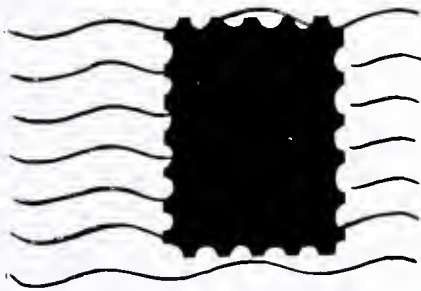
Postgraduate Psychiatric Multidisciplinary Continuing Education (Basic) to be February 10, 1977 at Pine Bluff. The site will be announced at a later date. Dr. Robert Matthews will be program director and is sponsored by the

UAMSC. Thirty prescribed hours approved.

Postgraduate Psychiatric Multidisciplinary (advanced) Continuing Education to be held at UAMSC on February 17, 1977. This is sponsored by the UAMSC; Program Director is Robert Matthews, M.D. and is 24 prescribed hours credit.

SOUTHWEST ALLERGY FORUM

On April 30 through May 4, 1977, the Southwest Allergy Forum will hold its meeting at the Lakeway Inn near Austin, Texas. Those interested should write Theo S. Painter, Jr., M.D., Suite 107 Medical Park Tower, Austin, Texas 78705.



L E T T E R S T O T H E E D I T O R

November 8, 1976

Arkansas Medical Society
Fort Smith, Arkansas
Dear Sir:

The University of Arkansas College of Medicine is approaching its centennial year. To coincide with that year a volume of history of the institution is being planned. I am gathering information pertaining to the Department of Radiology at the College of Medicine for inclusion in that volume.

I am seeking any sort of information that the members of the Society, both radiologists and non-radiologists, might have that would aid in this project. I would particularly like reminiscings, anecdotes, photographs, or newspaper clippings. Of immediate concern to us is information dealing with the pre-1940 years of radiology at the school and in Arkansas.

Any information pertaining to this subject would be very much appreciated, and of course, all clippings and photographs would be copied and the originals returned to the owners.

Thank you very much for your help.

Sincerely,
Max L. Baker, Ph.D., Head
Division of Radiological Sciences
Assistant Professor of Radiology



PROCEEDINGS OF SOCIETIES

MINUTES COUNCIL OF THE ARKANSAS MEDICAL SOCIETY November 14, 1976 Majestic Hotel, Hot Springs

The Council of the Arkansas Medical Society met at 10:00 A.M. on Sunday, November 14, 1976, at the Majestic Hotel in Hot Springs. Present were: Burge, Koenig, Kolb, Shuffield, Duzan, P. Bell, Harris, McCrary, Clark, Jouett, Williams, Henry, Kutait, Wilkins, Crow, Applegate, Verser, Watson, Ellis, Townsend, Edgar Easley, Neil Sims, Banks Blackwell, William James, Joe McAlister, George Warren, Sam Koenig, W. P. Phillips, Ken Lilly, Dr. Long, Mr. Warren, Mr. Mitchell, Mr. Cearley, Miss Richmond, and Mr. LaMastus.

Executive Vice President Long introduced to the Council Mr. Ken LaMastus, who will join the Society headquarters staff in December as Professional and Public Service Coordinator.

The Council transacted business as follows:

1. Neil Sims, Director of Continuing Education for Physicians at the University of Arkansas for Medical Sciences, explained a new program which will begin about January 1, 1977, in one area of the State and eventually be statewide. The program is a telephone consultation system operated through a toll free telephone line. The

Council voted approval of the proposed program.

2. Chairman Burge presented the report of a special audit of the Society records for the period from December 13, 1975 to July 31, 1976, at which time Paul Schaefer retired as executive vice president. Upon motion of Wilkins, the Council approved the audit as presented. There was discussion of the Society's financial standing and the dues increase to be effective January 1, 1977. The Council approved a motion by McCrary that the Council re-evaluate the dues structure after receiving additional information on the Society's employee retirement plan and the budget proposal for 1977.

3. Upon motion of Kutait, the Council approved actions of the Executive Committee in meetings of September 22, 1976, and October 7, 1976.

4. President Koenig reported to the Council on a meeting with Governor Pryor to discuss the malpractice situation. The Governor presented no proposed solutions but did advise that he would appoint a committee composed of physicians, lawyers, insurance agents, and laymen to study the problem. Dr. Koenig presented the Executive Committee's nominations for submission to the Governor as follows:

Dr. T. E. Townsend, Pine Bluff
 Dr. Mahlon Maris, Harrison
 Dr. Charles F. Wilkins, Russellville
 Dr. C. C. Long, Fort Smith
 Dr. John P. Burge, Lake Village
 Dr. W. Payton Kolb, Little Rock
 Dr. Elvin Shuffield, Little Rock
 Dr. A. S. Koenig, Fort Smith

Four physicians will be selected by the Governor from the list of nominees. The Council unanimously approved the proposed nominations.

5. Upon the motion of Williams, the Council voted to obtain from the Missouri State Medical Association a breakdown of costs involved in its recent program of getting remedial legislation enacted for malpractice liability.
6. President Koenig reported to the Council on negotiation with the Medicare intermediary and the Bureau of Health Insurance

on the change of payment method of Medicare fees. He reported that Society representatives meeting with the Bureau of Health Insurance would work for the best interest of the membership and any proposal for payment of fees under the one-locality concept would be presented to the Council and/or House of Delegates for approval.

7. Ray Jouett, Chairman of the Council's Ad Hoc Committee to Study the Health Department, reported that there had been no attendance at the hearing of his committee scheduled earlier that morning. He requested that the Executive Vice President reschedule the open hearing for a later date.
8. Asa Crow, Chairman of the Council's Medical School Committee, presented a proposed resolution from his committee which pertained to the School of Nursing of the University of Arkansas. Upon the motion of Jouett, the Council voted to refer the resolution to the Physician-Nurse Joint Practice Committee with the request that the committee report back to the Council at its next meeting on information gathered which would either substantiate or refute the charges of the resolution.
9. Upon the motion of Wilkins, the Council voted to recommend to the House of Delegates that the physicians of Arkansas not become involved in training or certification of physician's assistants.
10. Upon the motion of Kutait, the Council approved increasing the Society's 1976 furniture and equipment budget by \$3,500 to cover the purchase of dictating equipment and a typewriter, desk and chair for an additional employee.
11. Upon the motion of Williams, the Council voted to schedule Council meetings on a regular, bi-monthly basis.
12. Upon the motion of Jouett, the Council voted to invite a representative of the Medical Group Management Association to attend meetings of the Council when the meeting agenda includes items of intermediary negotiations.

The Council meeting adjourned at 12:10 P.M.

APPROVED: John P. Burge, M.D.

Chairman of the Council

HOUSE OF DELEGATES

November 14, 1976

Majestic Hotel, Hot Springs

The House of Delegates of the Arkansas Medical Society was called to order by Vice Speaker Asa Crow at 1:35 P.M. on November 14, 1976, at the Majestic Hotel in Hot Springs.

Invocation was by President-elect W. Payton Kolb.

Upon the motion of Verser, the House voted to dispense with the roll call of members of the House and to act as a "Committee of the Whole" with everyone present entitled to vote.

Dr. Crow advised that the "Resolution of Concern" from the Medical School Committee of the Council had been referred to the Physician-Nurse Joint Practice Committee for further consideration.

The following items of business were considered by the Committee of the Whole:

1. Chairman Burge presented a recommendation from the Council that the physicians of Arkansas not become involved in training or certification of physician's assistants. Councilor Wilkins requested a correction to "the State of Arkansas not become involved in training or certification of physician's assistants." Upon the motion of Warren, the House approved the recommendation of the Council as corrected.
2. Joe Verser, Secretary of the State Medical Board, spoke regarding the status of the Healing Arts Examination. He stated that there were three possible courses of action to be recommended: (1) that day one of the FLEX be adopted in lieu of the Healing Arts Examination, (2) support abolishment of the Healing Arts Board, or (3) recommend no change in the current Healing Arts Requirements. Dr. Verser spoke in favor of proposal number one. Legal counsel advised that substitution of a portion of the FLEX examination for the Healing Arts Examination would not be upheld in the courts. Upon motion of Ellis, it was voted to recommend that there be no change in the healing arts requirements.
3. Upon the motion of Kutait, it was voted to send a letter explaining the position on the healing arts examination to the Dean of the University of Arkansas College of Medicine for dissemination to the student body of the

University of Arkansas College of Medicine. The motion also directed that a letter of appreciation be forwarded to members of the Healing Arts Board.

4. Chairman of the Medical Legislation Committee, Elvin Shuffield, presented recommendations from his committee as follows:
 - (A) Occupational therapists. The Committee recommended that the Society support passage of legislation to provide certification of occupational therapists under the State Medical Board. Motion for approval carried.
 - (B) Continuing Education Act. The Committee recommended adoption of a Continuing Education Act. A bill has been drafted which is mostly permissive-type legislation providing for continuation education requirements under the State Medical Board. The rules and regulations as to how many hours required for relicensure, etc., would be by administrative action of the Board. Approval was voted.
 - (C) Licensure by Reciprocity. The Committee recommended changing the Medical Practices Act provisions for licensure by reciprocity to require applicants to remain in location listed on application as intended site of practice or face revocation of license. Physicians to practice in hospitals would be exempt from the provisions of the act. Physicians who do not wish to accept the conditions of such reciprocal licensure could take examination for licensure. Upon motion of Wilkins, the proposal was given approval.
 - (D) Waiver of Liability for Board Members. The Committee recommended passage of legislation to provide that no member of a board or any profession or occupation classified by the statutes of Arkansas as a healing arts profession shall be liable in indemnity to any person for slander, libel, defamation of character, breach of any previous communication or otherwise for any action taken within the scope of the function of such board, if such board member acts without malice and within the reasonable belief that such action is warranted by the facts

known to him. Motion for approval carried.

(E) Disabled Physician's Act. The Committee recommended passage of legislation to exempt from liability a hospital and members of the staff of a hospital for reports in good faith to the State Medical Board when there is dismissal of a physician from the staff of a hospital because of breach of professional ethics, medical incompetency, moral turpitude, or drug or alcohol abuse. Upon motion of Warren, approval was voted.

(F) Heimlich Maneuver. The Committee recommended that the State Health Department be requested to distribute more information on the Heimlich maneuver, particularly to restaurant employees. Motion for approval carried.

(G) Financial assistance for students of chiro-

practic and osteopathy. The Committee recommended that the Society oppose any legislation to provide financial assistance to Arkansas citizens studying the science of chiropractic or osteopathy in institutions of higher learning outside the State of Arkansas. Upon motion of Warren, it was voted to oppose such legislation.

(H) Definition of Death. The Committee recommended that an attempt be made to get legislation passed defining death. Upon motion of Henry, it was so voted.

(I) The Committee recommended that serious consideration be given to going the petition route for a constitutional amendment for malpractice. Upon motion of Blackwell, it was so voted.

The House adjourned at 3:10 P.M.

APPROVED: Asa Crow, M.D.

Vice Speaker, Presiding



NEW MEMBERS

FRANCY M. MATEUS, M.D.

Dr. Francy M. Mateus of 305 Valley Drive, Helena, has been accepted into membership by the Phillips County Medical Society. Dr. Mateus is a native of the Philippines and received her medical education in the Philippines. She is a graduate of the University of Nueva Caceres, Naga City, Philippines and the University of St. Thomas in Manila. She served her internship at the University of St. Thomas and graduated with a degree of Doctor of Medicine and Surgery. From 1967 to 1968, she was in adjunct residency—Obstetrics, Brookenshire Memorial Hospital in Davao City, Philippines; 1968 to 1969, she was house physician at Mother Seton Hospital, Naga City, Philippines; and in 1969 to 1970 she was

in a rotating internship at the Norwegian American Hospital, Chicago, Illinois. From 1970 to 1973, Dr. Mateus was in Psychiatric Residency at the Pontiac State Hospital, Michigan State University Affiliated Program, Pontiac, Michigan. For two months she was in residency at the Dingleton Hospital in Scotland.

Dr. Mateus had been staff psychiatrist at the Clinton Valley Center, Pontiac, Michigan, and assistant coordinator of the residency program at the Clinton Valley Center prior to coming to Helena. She is currently staff psychiatrist at the East Arkansas Regional Mental Health Center in Helena and a member of the American Psychiatric Association and the Arkansas Psychiatric Association.

JOE P. ROUSE, M.D.

The Washington County Medical Society has accepted Dr. Joe P. Rouse into membership. Dr. Rouse is a native Arkansan and received his medical education at the University of Arkansas. He served his internship at the United States Naval Hospital in San Diego and his residency at the United States Naval Hospital in Jacksonville, Florida. He served in the Navy five years. Dr. Rouse was Clinical Instructor at the University of California in Los Angeles School of Nursing in 1975. He was Clinical Instructor at

NEW MEMBERS

the University of Arkansas College of Medicine in 1975-1976 for the Area Health Education Center program.

Dr. Rouse is in Family Practice at 241 West Spring in Fayetteville and is associated with Drs. Donald B. Baker, Carie D. Buckley, Jr., Hamilton R. Hart, Lee B. Parker, Jr., and James K. Patrick. He is board certified by the American Board of Family Practice and a Fellow of the Arkansas Academy of Family Physicians.

ROBERT B. WILSON, JR., M.D.

Dr. Robert B. Wilson, Jr., is a new member of the Washington County Medical Society. He is a native of Searcy and attended the University of Arkansas College of Medicine where he received his M.D. degree. He interned at the University Hospital in Little Rock.

Dr. Wilson's office is located on Highway 68 West, Huntsville, and he is a family practitioner.

HERBERT H. PRICE, III: MEDICAL STUDENT

Mr. Herbert H. Price has been extended membership into the Pulaski County Medical Society.

He is a sophomore at the University of Arkansas and is a native of Arkansas.

JOHN B. WEISS, M.D.

Dr. John B. Weiss is a new member of the Pulaski County Medical Society. He is a graduate of the University of Arkansas College of Medicine and interned at the University Hospital. He completed a residency in general

surgery from 1970 to 1974 at the same institution, and is currently chief thoracic cardiovascular resident there.

Dr. Weiss is board certified by the American Board of Surgery and is a member of the Southwestern Surgical Association, American College of Cardiology, and a member of the Candidate Group of the American College of Surgeons.

DAVID T. SWARD, M.D.

Dr. David T. Sward has been accepted into membership of the Pulaski County Medical Society. He is a native of Arkansas and received his medical education at the University of Arkansas in Little Rock. He interned at St. John's Hospital in Tulsa, Oklahoma, and completed a residency in orthopaedics at the University of Arkansas College of Medicine in 1976.

LARRY STERLING WATKINS, M.D.

Dr. Larry S. Watkins is a new member of the Pulaski County Medical Society. He was born in Monticello, Arkansas, and received his medical education at the University of Arkansas. His internship was at the University of Arkansas Medical Center and he completed his residency in July, 1976, at the University of Arkansas Medical Center in internal medicine.

Dr. Watkins' office is located at 500 South University, Suite 402, and his specialty is Internal Medicine. He is a member of the Association of American College of Physicians.



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1977 Annual Session

ARKANSAS MEDICAL SOCIETY

April 24-27, 1977

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AND CONVENETION CENTER

LITTLE ROCK

Program Theme:

**"Common Problems
for Rural Physicians"**

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February, 1977

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 73 No. 9

FORT SMITH, ARKANSAS

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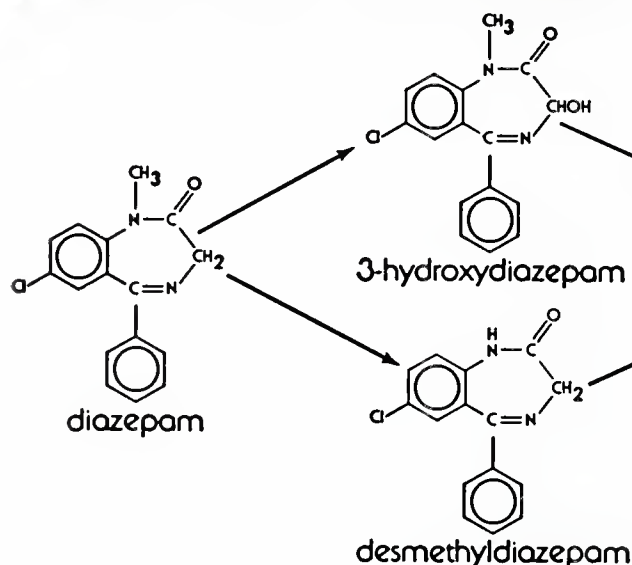
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Emergency Medical Services of Arkansas

Samuel E. Landrum, M.D.**

History

Trauma has become a disease of major epidemic proportion in this country. This fact has been neglected. This has lulled the medical profession and public to fail to reduce the 110,000 accidental deaths annually in this country. One-half of these are from automobile related injuries. Injuries such as assault and minor accidents in industry, home and recreation account for the others. Accidental death is the biggest killer in this country of persons before the age of 37. This is when most of our citizens are at their most active and productive time of life. One can readily see the high cost financially and on a humane basis that trauma engenders.

In the early 1900's the first horseless carriage in Chicago was an ambulance. There was probably a discussion among the leaders of the time regarding the cost of this service and whether it could replace the horse-drawn carriage. In the 1960's a survey by the American College of Surgeons revealed that Arkansas ranged last in this country regarding mortality rate from trauma on our public roads. In 1972 the Department of Transportation rated Arkansas zero regarding the ability of the State to meet various Federal Highway Safety Standards for the delivery of emergency medical services. In early 1972 the Arkansas Health Systems Foundation with the cooperation of the Arkansas Regional Medical Program, the Arkansas Comprehensive Health Planners and interested public and private organizations developed an application for a federal contract of \$3.4 million, for implementation of an emergency medical services system over a three year period from July 1972 to July 1975. The Arkansas Health Systems Foundation was successful in its application and developed a plan wherein each district has a system. Con-

tract for elements of the system were made in the districts and have developed substantially.

Various Systems

The plan was devised to serve five principal functions. Effort was made to avoid thinking in terms of hardware, but to think in terms of services available. These services in turn are related to what happens to the patient from the time he becomes a victim until the time he is released to return to self care.

1. *Detection and Reporting or Consumer Information and Education.*

There is no widely advertised telephone or emergency number available throughout this State by which an emergency medical problem can be reported. This is especially difficult for the many tourists who are unaware of their particular location. In some of the districts the number ENTERprise 8-900 is available, and this can be reached by dialing the Operator and asking for this. This will connect the caller with the dispatch center which can determine the location of the emergency and dispatch a vehicle with personnel to the scene. The "911" is an inappropriate number in Arkansas because of the multitude of telephone companies providing service in this State. ENTERprise 8-900 seems to be more feasible in most parts of the State.

2. *Resource Co-ordination Center.*

For the Emergency Medical Services to be available as a system, it is necessary for there to be a point of control aware of the location of various vehicles and personnel across a district if the response to the emergency is to be made most efficiently. This dispatcher knows what vehicles are out of service or unavailable for another call and provides dispatch of a second unit or a back-up unit to a scene if needed. They can also advise incoming vehicles of the location of specialty care and assist the arriving patients being di-

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rected to the hospital where special services may be most quickly available as needed.

3. *Mobile Functions.*

This includes the purchase of vehicles to meet standards for patient care as well as transportation, being concerned with the stabilization of the patient at the scene of the emergency, the continuation of proper treatment enroute and safe transportation on rural roads as well as urban expressways. Additionally, considerable emphasis is made to train the EMT-A's who are emergency medical technicians and an emerging paramedical specialty group. These personnel have undergone a basic course of 81 or more hours of training, learning the principles of controlling hemorrhage and treating shock. Fractures are splinted. The positions for transferring patients with various problems have been taught. They have also been instructed in emergency childbirth, and already this information as well as most of the other information they have received has been put to use in the care of patients. There are underway some training programs for advanced emergency medical technicians. These people can be taught to provide more sophisticated emergency aid such as the starting of intravenous fluids, the passage of endotracheal tubes and the administration of a few special drugs particularly for cardiac emergencies under the supervision of a physician.

4. *Non-Mobile Functions.*

This relates to the personnel in the emergency department such as nurses and physicians. It also relates to categorization where individual hospitals will be aware of what services they can provide on 24-hour basis, and patients requiring more specific or specialized care can be transferred directly to the hospital which has this care available. Studies have indicated whenever the patient is retained at a hospital emergency room with no facilities for advanced resuscitation or treatment, this increases morbidity and mortality rate considerably. This can be avoided by pre-recognizing that certain hospitals are to be bypassed in the case of extensive injuries.

5. *Evaluation.*

This function is relatively minor but is very important so that the data necessary for future funding and applications can be derived. This way the response of a system to one or more vic-

tims can be documented, and whether more people are being ultimately returned to society in a healthy state can be determined.

What Has Occurred

More than 1,000 persons have received the training for becoming EMT-A's provided through the joint efforts of the Arkansas Department of Health and American College of Surgeons, Arkansas Committee on Trauma, the Committee on Injuries of the American Academy of Orthopedic Surgeons, several hospitals, interested physicians and colleges. Not all personnel who have received this training are actually employed in ambulance service. Some are emergency department nurses or other personnel in doctors' offices and hospitals. As a result of this training, Arkansas now rates 16th in the nation regarding the number of nationally registered EMT's per capita.

There is a 2-year course for advanced training in a few educational facilities in this State. Persons in this training receive special instruction regarding the administration of intravenous fluids, endotracheal intubation, more refined methods of ventilation, cardiac defibrillation and the administration of certain drugs for cardiac resuscitation.

Three of the districts in the State operate resource and control centers. Plans are underway to enlarge the areas served by these, so that all areas in the State can ultimately be reached.

Emergency Department nurses are receiving instructions regarding the special care needed by emergency victims. This is being conducted by workshops provided by the Arkansas League of Nurses at various points around the State, and also in programs provided by the Committee on Trauma, the American College of Surgeons.

The recent Arkansas General Assembly passed a bill legislating the standards for ambulance services. This specifies that the Arkansas State Department of Health will set the standards and certify that compliance meets these minimum requirements for ambulance operators to continue or become certified in this system.

Physicians are receiving courses in the State through cooperation of the Arkansas Medical Society, the Arkansas Academy of Family Physicians and other professional groups. A 12-hour

course has been presented in several locations in the State and a 2-hour panel program was presented at the 1975 Annual Session of the Arkansas Medical Society.

Physicians' Role

The physicians must maintain an active position teaching the ambulance personnel. Much of the didactic and practical course can be provided by lay instructors, but the prestige a physician lends and his expert knowledge enhances this

program more than can be measured. Physicians must be willing to give their time and serve on various district and statewide Emergency Medical Services Councils. Unfortunately, much of the early program and some of its implementation has been done by well meaning persons who have never had contact with patients. This is a daily part of most physicians' practice and with their advice and cooperative support this emerging EMS System will expand to provide greater care in this neglected medical field.



Jejunogastric Intussusception*

John Robert Sellars, M.D.,** Fred T. Caldwell, M.D.,*** and Kerry Ozment, M.D.****

Abstract

Jejunogastric intussusception is an unusual complication of gastric surgery. Only a few more than 100 cases have been reported. In the two cases reported herein, one intussusception was of the efferent loop following gastrojejunostomy, and one was of both loops following subtotal gastrectomy. The first was managed by jejunostomy and the second by revision.

Jejunogastric Intussusception

Jejunogastric intussusception is an unusual complication of gastric surgery. Only a few more than 100 cases have been reported.

Hunter first described intestinal intussusception in 1793 and described three types: ileocolic, enteric, and colic.¹ The first gastroenterostomy was performed in 1881,² and the first retrograde intussusception of a gastrojejunostomy was reported in 1914.³ The first comprehensive review of the subject was presented by Bettman and Baldwin in 1935.⁴ The importance of making an early diagnosis was emphasized by Foster, who reported a 10.5% mortality if surgery was carried out less than forty-eight hours after onset of symptoms and 53.8% if the time interval was greater than forty-eight hours.⁵ The purpose of this paper is to report two cases and to review briefly the diagnosis and management of this problem.

Case Reports

Case I. J. B. (ASH #LR59495), a forty-eight-year-old white male, was admitted to the Arkansas State Hospital in November, 1970, because of chronic colicky epigastric pain. He had had an omentopexy and later a subtotal gastrectomy and Billroth II anastomosis for peptic ulcer disease in 1953. He had had chronic nausea and occasional vomiting ever since the operation, but especially for the year prior to admission. He had had colicky epigastric pain once or twice a day for the past year. The pain was not related to meals or to time of day. He had lost ten to fifteen pounds over the past year.

On physical examination he appeared generally healthy. There were old healed upper

paramedian incision scars. The only significant finding was mild direct epigastric tenderness. Two different upper gastrointestinal series demonstrated a jejunogastric intussusception. (Fig. 1) He had frequent bouts of epigastric pain and vomiting while being observed on the ward.

At operation he was found to have had a retrocolic Billroth II anastomosis with a stoma seven to eight centimeters in diameter. The afferent and efferent loops of the jejunum were redundant and edematous and each prolapsed easily into the gastric pouch for a distance of six to eight centimeters. Both of the redundant jejunal limbs were resected and an end-to-end anastomosis was done. Just distal to this the jejunum was brought up and an antecolic isoperistaltic gastrojejunostomy was done. His post-operative course was benign. He did continue to have some late dumping symptoms (nausea, pallor, sweating, and nervousness) which he had had previously, but he did not have the severe colicky discomfort in the epigastrium.

Case II. W. C. (UAMC #346160) was a fifty-six-year-old white male who developed crampy epigastric and periumbilical pain about eighteen hours prior to admission to the University of



Figure 1.

Case I. An upper gastrointestinal series demonstrating intussusception of jejunum into the gastric pouch.

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Arkansas Medical Center. In two or three hours he began to vomit maroon colored material. The last bowel movement was the day before and was normal. From 1940-1942 he had had two omentopexies for duodenal ulcer perforations, and in 1942 he had had a gastrojejunostomy. Since that procedure he had had no gastrointestinal symptoms until the onset of the present illness. He was a heavy drinker.

On physical examination temperature was 97°, pulse 70, respirations 16, and blood pressure 75/40. He appeared chronically ill but was in no acute distress. The abdomen was not distended, but there was a fullness in the upper abdomen. There were old incision scars, and there was mild epigastric tenderness.

Hematocrit was 43 and remained stable, and white blood count was 15,300. Electrolytes and BUN were within normal limits. A nasogastric tube returned some old blood and bile.

He was continued on intravenous fluids and nasogastric suction. Blood pressure rose to 120/80 mm. Hg after only two liters of fluid. He remained stable but continued to have old blood in the nasogastric aspirate. An upper gastrointestinal series obtained the next morning, about twelve hours after admission, showed a very dilated stomach filled with small bowel. The duodenum and afferent loop appeared normal, but there was a very dilated segment which appeared to be efferent loop. Barium did not progress beyond this point even after three hours. (Fig. 2.)

As it was felt that exploration was indicated, he was taken to the operating room approximately fifteen hours after admission. Most of the small bowel had intussuscepted into the stomach. (Fig. 3.) He had had a retrocolic gastrojejunostomy with an anastomosis approximately eight centimeters in diameter. The intussusception was reduced easily by traction. A Wetzel jejunostomy was done at the site of the efferent loop to attach it to the abdominal wall. His postoperative course was uneventful, and the jejunostomy tube was removed on the eighth day. When seen in the clinic for follow-up he was asymptomatic.

Classification

Jejunogastric intussusception may be divided into two clinical groups on the basis of clinical presentation: the acute fulminating type and

the chronic recurrent type.⁶

Shackman lists three anatomical types:

- Type I. Intussusception of the afferent loop.
- Type II. Intussusception of the efferent loop (about 75% of cases).
- Type III. Intussusception of both loops. (This is the rarest type and accounts for only about 10% of cases).

Irons points out that types I and II are usually jejunojejunal first, then jejunogastric.⁸

Etiology

Numerous etiologies have been suggested.



Figure 2.
Case II. An upper gastrointestinal series demonstrating intussusception of jejunum into the gastric pouch.

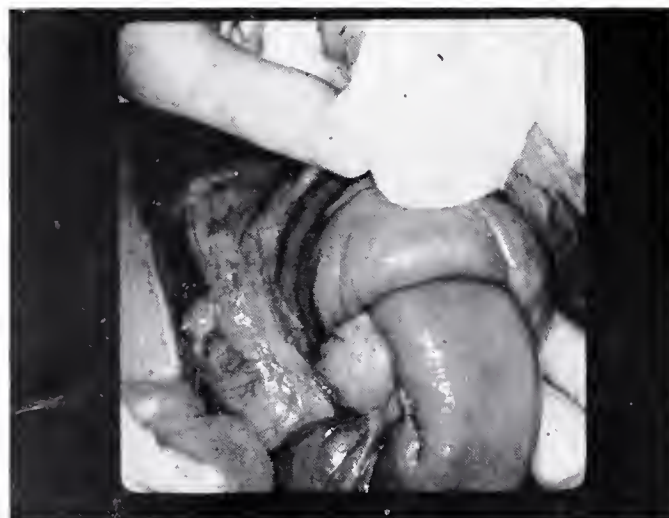


Figure 3.
Case III. Photograph of the stomach with the intussuscepted jejunum as it is being reduced.

Among these are sudden increase in intraabdominal pressure, such as vomiting or defecating, irritation of the jejunum by acid gastric contents, and disparity in size of the lumina. However, this problem occurs with equal frequency in anterior and posterior gastrojejunostomy, whether the stoma is large or small, and after enteroanastomosis has been added.⁹

Mechanical causes which have been suggested include shortening of the mesentery of the jejunal loop, pressure from a short mesocolon, adhesions to the mesocolon, sucking action of the stomach where the stoma is narrow, too large a stoma, jejunal stenosis with obstruction facilitating antiperistalsis, and an unduly long afferent loop.⁶ Many feel the intussusception is due to retrograde peristalsis which is secondary to some functional disturbance rather than to a mechanical cause.

Clinical Features and Diagnosis

Sudden colicky epigastric pain is usually the first symptom. Vomiting, a constant feature, usually consists of food first, then bile, then finally blood as the mucosa becomes ischemic. About half the patients have epigastric tenderness, and about half have a palpable epigastric mass.⁹

Plain films of the abdomen are usually normal but may show a density in the left upper quadrant. Osmond and Fowler described the signs of jejunogastric intussusception on upper gastrointestinal series:

1. Presence within the lumen of the stomach of a partially-moving filling defect, having the lines of a normal jejunal pattern of valvulae conniventes
2. Reentry of barium into the stomach by way of the afferent loop and stoma
3. Delay of gastric emptying
4. Increase in size of the stomach.¹⁰

Foster gives several reasons for difficulty in diagnosing this condition:

1. Only one or two cases have been seen by any one surgeon. The problem is so rare it is not thought of.
2. Past history of ulcer disease leads one to think of recurrent ulcer or marginal ulcer.
3. As patients with mild or moderate bleeding are usually kept quiet, specific diagnostic procedures such as upper gastrointestinal films may be delayed.

4. The combination of high intestinal obstruction and bleeding is rare and misleading.
5. The chronic intermittent type may be reduced spontaneously before the diagnosis is made.

However, the features of sudden onset of epigastric pain, vomiting of food then bile then blood, and a palpable epigastric mass in a patient with previous gastric surgery do constitute a classical triad.⁵ The differential diagnosis includes other more common complications of gastric surgery, marginal ulcer, perforated ulcer, bleeding ulcer, pancreatitis, biliary tract disease, and high intestinal obstruction.⁹

Treatment

Various methods of treatment, all of them operative, have been used. Gastrectomy and suturing of the loop to the transverse colon or mesocolon have been suggested. Some have suggested that beyond simple reduction no procedure to prevent recurrence is necessary. In our first case it was felt that a definitive procedure was indicated because of the chronic recurrent nature of the problem. In our second case it was felt that a temporary jejunostomy with resultant jejunopexy was a simple, safe, and effective means of preventing recurrence.

REFERENCES

1. Hunter, J.: On intussusception. *Tr Soc Improvement Med and Chir Knowledge*. Lond 1:103, 1793 (reprinted in *Hunter's Works*. Longman 3:587, 1837). Cited in *Lahey Cl. Bul.* 11:194, 1960.
2. Woelfler, A.: Anterior gastroenterostomy. *Zentralbl f Chir* 65:705, 1881.
3. Bozzi, E.: Annotation. *Bull Acad Med, Genova*, 1914 No. 3-4, p. 122.
4. Bettman, R. B., Baldwin, R. S.: Retrograde intussusception of jejunum: a complication of gastro-enterostomy. *JAMA* 100:1228, 1935.
5. Foster, D. G.: Retrograde jejuno-gastric intussusception — a rare cause of hematemesis. *AMA Arch Surg* 73:1009-1017, 1956.
6. Salem, M. H., Coffman, S. E., Postlethwait, R. W.: Retrograde intussusception of the gastrojejunal stoma. *Ann Surg* 150:864-871, 1959.
7. Shackman, R.: Jejuno-gastric intussusception. *Brit J Surg* 27:475, 1935.
8. Irons, H. S., Jr., Lipin, R. J.: Jejuno-gastric intussusception following gastro-enterostomy and vagotomy. *Ann Surg* 141:541-546, 1955.
9. Campbell, J. A.: Retrograde intussusception of gastro-jejuno-stoma. *Scottish Med Jnl* 1:130-134, 1956.
10. Osmond, J. D., Jr., Fowler, H. D., Jr.: Jejuno-gastric intussusception. *Am Jnl Roentgenology and Radium Therapy* 79:786, 1958.

Recent Developments in Otology*

Gale Gardner, M.D.**

Over the past twenty years otology has evolved from a specialty heavily preoccupied with the treatment of infection and its complications to one much more oriented to the preservation and restoration of normal hearing, balance, and facial nerve function. Although this has led to an improvement in overall medical care, it has made it difficult for physicians both in and out of otolaryngology to keep pace with these rapid changes, and thereby able to make them available to their patients.

The key to overcoming this problem is a basic understanding of the structure, function, and method of examination of the ear. Such an understanding is not difficult to attain. The purpose of this paper is (1) to help in this attainment, and (2) to describe some of the current concepts of otologic treatment, based on such an understanding.

Structure of the Ear

The ear should be thought of as two very delicate neural end organs, one for hearing, the cochlea; and the other for balance, the semicircular canals and vestibule. These membranous structures are filled with inner ear fluid, are located within the temporal bone, and are connected centrally to the brain stem by the cochlear and vestibular divisions of the eighth cranial nerve. In addition, the hearing portion of this system is connected to the outside via the external ear canal, the ear drum or tympanic membrane, and the chain of three small hearing bones or ossicles. The ossicles span the middle ear space, the first being attached to the ear drum, and the third attached to the inner ear. The middle ear space has a separate connection with the nose via the Eustachian tube anteriorly, and with the mastoid air space posteriorly. The facial nerve, or seventh cranial nerve, winds throughout the structures of the temporal bone from the internal auditory canal medially to its exit from the temporal bone laterally.

Function of the Ear

Sound vibrations enter and travel through the

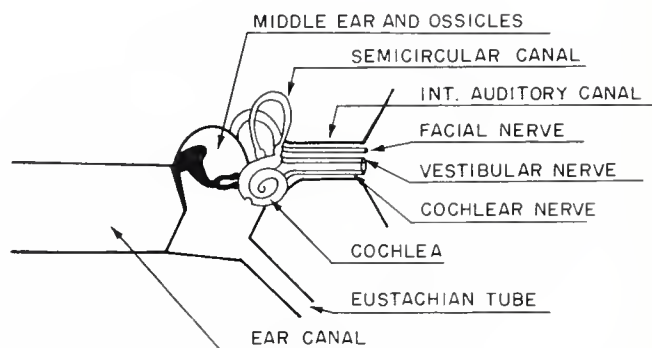


Figure 1.
Diagram of Ear Structures.

ear via the ear canal, eardrum, the three ossicles, and the inner ear fluid system. The sound energy is then converted to electrical energy by the nerve endings, and travels on to the brain stem.

Motion of the head causes movement of this same fluid system, which is also converted into electrical energy and travels to the brain stem as balance signals.

The Eustachian tube allows the middle ear space to maintain an equal air pressure on both sides of the eardrum, which in turn allows a maximum of free motion of the three ossicles. Blockage of the Eustachian tube, on the other hand, produces a vacuum within the middle ear, and the impaired motion of the three ossicles.

Diagnosis of Ear Disorders

The operating microscope has revolutionized not only the surgical treatment of many ear disorders, but also the diagnosis of tympanic membrane and middle ear disease.

Audiometry, or the testing of hearing function, is basic to an evaluation of ear function. It involves the presentation of sound signals of known intensity to the patient in a sound-controlled environment, so as to establish the patient's level of hearing. Hearing losses can thereby be detected, as well as specific types of losses. This information of course allows an interpretation of whether an ear disorder is present, and if so, the type of disorder. For instance, a simple failure of sound to reach the inner ear due to some problem with the conductive system (ear canal, eardrum, or ossicles), which is called a conductive loss, differs audiometrically from a hearing loss due to a problem involving the cochlea or nerve of hearing, which is called a sensorineural or nerve-type hearing loss. Tuning forks can also

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be very helpful in making this differentiation. More sophisticated hearing tests enable us to indicate whether a sensorineural or nerve-type hearing loss is due to a problem within the cochlea, or in the nerve of hearing (retrocochlear).

Electronystagmography, or ENG, is a method of recording the movement of the eyes, which are under the control of the inner ear balance centers, and thereby indirectly studying the function of the balance centers. Electrodes are placed adjacent to the eyes, and electrical potentials from the eye are picked up in much the same way that cardiac potentials are picked up by EKG electrodes.

Impedance testing is a new method whereby the relative stiffness or looseness of the middle ear structures is measured. It is very useful for gaining information regarding the status of the function of the Eustachian tube, the middle ear space, and the ossicles.

Temporal bone radiography, using either plane films, sophisticated laminographic equipment such as the Polytome, or the use of contrast material within the posterior fossa are extremely important in the diagnosis of tumors of the temporal bone.

CURRENT CONCEPTS OF TREATMENT

Diseases of the temporal bone and their treatment can most easily be understood by grouping the various disorders around the basic structure and function of the ear. Therefore we can think of disorders of the inner ear, facial nerve, ear canal, Eustachian tube, and middle ear.

Inner Ear

Disorders of the inner ear are probably the most difficult ear problems to become familiar with. Inner ear structure and function is usually more obscure to the physician, and it is an area that is considered to be somewhat isolated from effective medical and surgical treatment. But times are changing, and we must begin to make the effort to look at these conditions more aggressively if the patient is to have the most effective medical and surgical treatment reasonably possible.

Meniere's Disease. Meniere's disease is not a wastebasket term for inner ear disorders at large. Rather it is a specific condition in which an increased amount of inner ear fluid, or endolymph, is present and produces distention and distortion

of the membranous structures of the inner ear. It produces a distinct type of sensorineural hearing loss, usually in only one ear, tinnitus, and attacks of spontaneous vertigo. Although it can be exceptionally disabling, it is also subject to sudden spontaneous remissions with relief of symptoms.

The great majority of patients thus recover spontaneously, or with the help of medical management. There is a distinct small minority of patients, however, who are not so fortunate. These patients sustain additional sensorineural hearing loss with each attack, and over a period of several years may lose most of their effective hearing in the involved ear. Surgical treatment for these patients is now available.

When the condition is in its early stages, and the degree of hearing loss is not excessive, but yet the attacks of vertigo are disabling, the aim of treatment is to eliminate the attacks of vertigo, and to stabilize, and perhaps even improve the hearing. The endolymphatic sac shunt operation is designed to accomplish this.¹ This procedure is done through a post-auricular incision and through the mastoid space. The endolymphatic sac, which is an extension of the inner ear membranous endolymphatic system, can be approached and opened here, without disrupting the more central inner ear structures. Having opened the space, the problem is how to drain away the over-accumulation of inner ear fluid on a permanent basis. Fortunately the subarachnoid space lies immediately beneath the sac. By opening into the sac from the outside, and then making an opening in the inner wall of the sac, a small shunt tube can be placed permanently from the interior of the sac into the underlying subarachnoid space. Excess endolymph can therefore be released into the subarachnoid space.

This procedure is used only in patients who are considered medical failures. In my own series of thirty-one patients, it has been successful in relieving vertigo and stabilizing hearing in sixty-five percent of cases. Hearing has actually been improved in thirty-two percent.

Another procedure which has been found by others to be very useful in this situation involves the application of ultrasound energy into the inner ear through the ear canal and round window. Results using this technique have also been very encouraging and promising.

When these conservative procedures are not successful, or when the patient's hearing is so severely impaired that it is not worthwhile trying to save it, destruction of the inner ear is preferable. This allows relief of vertigo in as high as ninety-nine percent of cases, depending on the method of destruction that is used. Although there are a number of approaches for destroying the function of the ear, I prefer to accomplish as complete a destruction as possible so as to allow the least chance of later recovery of function and recurrence of symptoms. For this reason I recommend a trans-mastoid labyrinthectomy with sectioning of the vestibular and cochlear nerves. This operation is performed through a post-auricular incision and through the mastoid space. It involves use of the operating microscope and high-speed drill so as to open the inner ear spaces and remove the membranous contents, and then to locate the vestibular and cochlear nerves in the internal auditory canal. These nerves are individually sectioned, while the adjacent facial nerve is carefully preserved.

It is important that patients with Meniere's disease who do not recover spontaneously and who continue to experience disabling symptoms having to do with balance be recognized so that they can have the benefit of surgical treatment.

Acoustic Neuroma. The most significant lesion involving the inner ear is the acoustic neuroma. This tumor typically begins on the eighth cranial nerve within the internal auditory canal, and grows medially into the cerebello-pontine angle. In the past this tumor has not been diagnosed until it reached a size sufficient to produce unmistakable intracranial signs and symptoms. The morbidity and mortality resulting from treatment at this stage were formidable.

Within the past fifteen years it has become possible to diagnose this tumor much earlier, when it is smaller, and when it can be removed with greater safety and less neurologic sequelae. This early diagnosis is based on recognition of the alerting symptoms of unexplained dizziness and progressive unilateral hearing loss and tinnitus, and by the use of audiometry, ENG, and radiography for confirmation.

The operating microscope, high-speed drill, and surgical knowledge of the temporal bone have allowed the otologist to contribute to the removal of these tumors by working as a team

with the neurosurgeon. This team approach has been particularly helpful in preserving the facial nerve during tumor removal.

Although great strides have been made in the diagnosis and treatment of this treacherous lesion, the main contribution yet remaining to be made lies in the area of early recognition at the primary care level of the alerting symptoms of unexplained dizziness, progressive unilateral hearing loss, and tinnitus.

Inner Ear Syphilis. This same triad of symptoms may also be the result of luetic disease of the inner ear.² It may occur in the absence of other manifestations of syphilis. It may be contracted before birth, yet not make itself known until adulthood. As is true of lues generally, it can mimic many other inner ear disorders.

This isolated form of lues frequently does not produce a positive VDRL, yet nearly always produces a positive FTA. For this reason, it is an exception to the usual laboratory rule that one first obtains a VDRL, then obtains an FTA only for confirmation. If one follows this rule, inner ear luetic disease is undiagnosable in most instances. When diagnosis is made, treatment with penicillin and steroids may improve both hearing and balance.

Unilateral Labyrinthine Dysfunction. Patients who have had head injuries, with or without basilar skull fracture, and with subsequent dizziness should be suspected of having unilateral labyrinthine dysfunction on the basis of labyrinthine concussion or fracture. Usually these patients recover spontaneously or with medical treatment. When they do not, and when the dizziness is disabling, additional work-up is indicated. If serial ENG's show consistent and definite dysfunction of one labyrinth, surgical treatment can be extremely helpful in relieving the balance disorder. If hearing is undamaged, the vestibular nerve can be sectioned by approaching the internal auditory canal from above. If hearing has been lost as a result of the injury, a labyrinthectomy with sectioning of the vestibular nerve, as described for far-advanced Meniere's disease, is the treatment of choice.

Facial Nerve

The facial nerve has not always been considered to be within the province of otolaryngology, even though its course lies largely within the temporal bone and even though nine out of

ten lesions involving the nerve occur within the temporal bone. The operating microscope and high-speed drill have now opened the entire temporal bone to the otologic surgeon. Therefore, otolaryngology now has a significant role to play in the diagnosis and treatment of facial nerve disorders.

Three very significant conditions affecting the facial nerve within the temporal bone are Bell's palsy, trauma, and tumors. It has always been comforting for physicians treating a case of Bell's palsy to realize that approximately ninety percent of cases recover spontaneously. The use of steroids appears to make this even more certain. Trauma within the temporal bone (usually from basilar skull fracture) was frequently considered something for which nothing practical could be done except perhaps for a fascial sling procedure, or perhaps a by-pass nerve graft using the eleventh or twelfth cranial nerves. Primary tumors of the facial nerve, usually neuromas, have been considered to be so rare as hardly to deserve attention. But as in so many things, times have changed.

Bell's Palsy. In every large series of patients having Bell's palsy, a small percentage of patients are left with a poorly functioning face and a resulting serious cosmetic problem. The impact of this on the patient is heavy indeed. Two facts make it possible for us to reduce the incidence of these unfortunate results. First, permanent loss of function of the nerve implies that actual degeneration of the nerve occurred at some point in time in a small percentage of cases. Electrical testing can identify this occurrence fairly promptly and with reasonable accuracy. Second, prompt surgical decompression of the nerve within the temporal bone, by opening the nerve canal and incising the nerve sheath, releases the pressure on the usually edematous nerve and appears to allow recovery to occur. It should be emphasized that such surgical treatment is required in only a very small percentage of cases of Bell's palsy, however.

Although this subject is controversial, the facts that poor results can occur, yet can be prevented by prompt recognition and surgical intervention, make it important that we be alert to recognize this unusual situation.

Facial Nerve Injury. Basilar skull fractures and other injuries to the temporal bone fre-

quently produce injury to the facial nerve. Usually there is simultaneous injury to the hearing and balance structures as well. The otolaryngologist is in a particularly good position to diagnose the site of injury to the nerve, because the necessary diagnostic tests are part of his routine workup. The operating microscope and high-speed drill allow him to approach the site of injury, evaluate the extent of the injury, and either approximate the severed nerve endings or to place a nerve graft when this is necessary. Results with this type of treatment are much superior to acceptance of non-function, or to plastic procedures on the facial musculature.

Facial Nerve Neuromas. The late Sir Terence Cawthorne, English otologist, observed that "all that palsies is not Bell's." The physician who treats Bell's palsy must be aware of this, or he will overlook the case of apparent Bell's that is actually due to a neuroma of the nerve, usually within the temporal bone. Recurrent episodes of paralysis separated by apparent good recovery should alert the physician to be suspicious of this. X-rays provide the diagnosis, and temporal bone surgery allows removal of the tumor with placement of a nerve graft. Otherwise this tumor produces widespread destruction to other temporal bone structures.

Ear Canal

Problems involving the ear canal include impacted cerumen, trauma, foreign bodies, congenital atresia, and carcinoma.

Cerumen. The very first problem the physician usually encounters in his evaluation of the ear frequently is inability to see the ear drum because of the presence of ear wax, or cerumen. Although it is tempting to stop at this point in the examination, whenever the likelihood of ear pathology exists, the cerumen should be removed and the drum visualized. Although there are a number of ways to accomplish this, the safest and most efficient is with the use of a small suction machine, connecting tubing, and a small suction tip. With the patient lying comfortably, and using the suction tip through an otoscope, cerumen can be removed with relative ease and a high degree of control and safety. Small children require restraint during this procedure however.

Trauma, Foreign Bodies. Trauma and foreign bodies of the ear canal should be approached with considerable care. In the event of trauma,

it is good practice to examine the ear canal, and remove debris and dried blood. Once it is apparent that there is injury to the tympanic membrane, particularly if there is a history of preceding head injury and possible basilar skull fracture, otologic evaluation is desirable. Similarly, small foreign bodies can many times be removed without difficulty using small angled instruments with the suction arrangement just described. Great care must be taken however with difficult or larger foreign bodies, particularly in situations involving infants and small children in which movement may produce injury to the tympanic membrane. In these situations, the use of an operating microscope, small ear instruments, and general anesthesia convert a hazardous situation into a routine procedure.

Congenital Atresia. Congenital atresia of the ear canal may or may not be associated with abnormality of the auricle and middle ear structures. In the past, emphasis has been placed on cosmetic correction of the external ear deformity when it was present. Now, using the techniques of tympanoplasty which will be described later, a new ear canal and ear drum can usually be created and the middle ear structures rearranged so that sound energy can be delivered to the inner ear. It is particularly important to consider this procedure in bilateral cases prior to school age so as to provide necessary hearing. Equally important is the necessity to fit the child with a hearing aid prior to surgery, during the years in which speech is being developed. In unilateral situations with normal hearing in the uninvolved ear, corrective surgery for hearing is not nearly as critical.

Carcinoma. Any apparent external infection of the ear which does not clear, and particularly which may be associated with severe pain, should raise the question of possible carcinoma. Newer surgical procedures are available for the treatment of this malignancy which have lowered the previously very high mortality rate.

Eustachian Tube

Eustachian tube dysfunction results in three major types of problems, acute otitis media, serous otitis media, and chronic otitis media with perforation of the tympanic membrane. The problem of acute otitis media is well understood generally, and no significant changes have occurred in its treatment. Rarely it may be as-

sociated with acute mastoiditis in children, which may require surgery.

Serous Otitis Media. Serous otitis media is an accumulation of transudate within the middle ear space, with associated retraction of the tympanic membrane and a conductive hearing loss. It occurs predominately in younger children. There are several approaches to treatment. Some prefer to do a thorough adenoidectomy, which many times solves the problem. Others prefer the placement of ventilation tubes through the tympanic membrane. Still others believe that the disease is on an allergic basis and prefer allergic management as the primary form of therapy. No one of these approaches solves all of the problems, which can be extremely frustrating at times to all concerned. Generally speaking, however, hearing loss can be corrected most of the time and the problem controlled. The primary contribution of the general physician is early detection of the serous otitis before hearing loss produces a problem with speech development or with school work.

Chronic Otitis Media. Chronic otitis media with perforation of the tympanic membrane is of two types, depending on the location of the perforation. A perforation of the drum that does not extend to the bony margins of the drum is called a central perforation, while a perforation that is not so limited is termed a marginal perforation. The significance of this distinction is that in the marginal perforation skin frequently invades the middle ear space and perhaps the mastoid space as well, producing a special type of problem called a cholesteatoma. In a central perforation this invasion of skin rarely occurs. When a cholesteatoma is present, it is likely to produce complications such as destruction of the ossicles, invasion of the inner ear with labyrinthitis, and even complications of the central nervous system such as epidural and subdural abscess, meningitis, and brain abscess.

Treatment is nearly always surgical. This type of surgery is termed tympanoplasty, and consists of repair of the perforated drum, using mesodermal tissue such as fascia or vein as a graft, along with rearrangement of the ossicles when they have been damaged by the disease. This is all that is usually necessary for a central perforation. In the case of a marginal perforation with cholesteatoma, it is necessary to remove the

sac of skin in its entirety, or failing this, to exteriorize the growth of skin in the middle ear by removal of the overlying ear drum. When the skin growth extends into the mastoid, exteriorisation, if necessary, requires removal of the bone over the mastoid and the bone that separates the mastoid from the ear canal. This is called a radical mastoidectomy, and produces a mastoid cavity.

Since these cavities are themselves subject to recurrent infections unless cleaned regularly, it is desirable to remove the skin growth in its entirety without exteriorisation and production of a mastoid cavity. This is called intact canal wall tympanoplasty.

When a cavity is already present and is infected, it may be obliterated with autogenous bone paste and homogenous femoral head bone chips. This may be combined with a tympanoplasty and constitutes an effort to return the ear as completely as possible to its original pre-diseased state.

Middle Ear

Other middle ear problems not resulting from Eustachian tube dysfunctions are otosclerosis and glomus tumors.

Otosclerosis. Otosclerosis, more properly called otospongiosis, is a growth of new, imperfect bone, usually adjacent to the third ear bone or stapes, which limits the motion of the stapes against the inner ear and produces a conductive hearing loss. The present treatment does not differ greatly from the original surgical procedure developed by John Shea twenty years ago in which he replaced the stapes with a prosthesis that was placed between the second ear bone (incus) and the opening into the inner ear. At present, a number of prostheses are available for a replacement of the stapes. Usually a vein or fascial graft is placed between the prosthesis and the inner

ear. Hearing is restored to near normal levels in approximately eight or nine cases out of ten. Diagnosis is based on a high index of suspicion in the presence of an unexplained conductive hearing loss with a normal-appearing tympanic membrane. Otosclerosis may apparently also involve the bone covering the inner ear and produce a sensorineural (nerve) hearing loss.

Glomus Tumor. A glomus tumor is a benign growth that may arise either from the middle ear or from the dome of the jugular bulb at the base of the skull. It arises from neural tissue in these locations. The latter type is referred to as a glomus jugulare tumor, and tends to extend into the middle ear. Treatment is surgical removal. Diagnosis is based on recognition of a reddish mass behind the tympanic membrane, sometimes pulsating, and nearly always producing a pulsing tinnitus.

SUMMARY

The use of sophisticated diagnostic tests, the operating microscope, and specialized surgical techniques, which have no use except in otology, have tended to isolate modern otologic practice from the mainstream of medicine. It is important that such isolation not prevent physicians in other areas of medicine from being aware of recent developments in otology which may benefit their patients. An appreciation of these advances is enhanced by an understanding of the structure, function, and method of examination of the ear.

REFERENCES

1. Gardner, Gale: Endolymphatic Sac Shunt Operation in Meniere's Disease. Transactions of the American Academy of Ophthalmology and Otolaryngology. In Press.
2. Patterson, Mack E.: Congenital Luetic Hearing Impairment. Archives of Otolaryngology, 87:378-382, April, 1968.



Keystone of the Shoulder Joint

I. Leighton Millard, M.D.*

The tendon of the supraspinatus muscle makes up the superior and central portion of the rotator musculotendinous cuff of the shoulder joint (Fig. B). This tendon is subjected to considerable stress in many functions of the arm and can be subjected to irritation from close association with the subacromial bursa (Fig. A).

Essentially the same symptoms arise whether there is damage to the bursa with secondary irritation of the tendon; or damage to the tendon with secondary involvement of the bursa.

Point tenderness localized over the superior and anterior shoulder joint, stiffness of movement in this area and aggravation of pain by movement are the cardinal signs of inflammation of the supraspinatus.

If symptoms are associated with acute injury,

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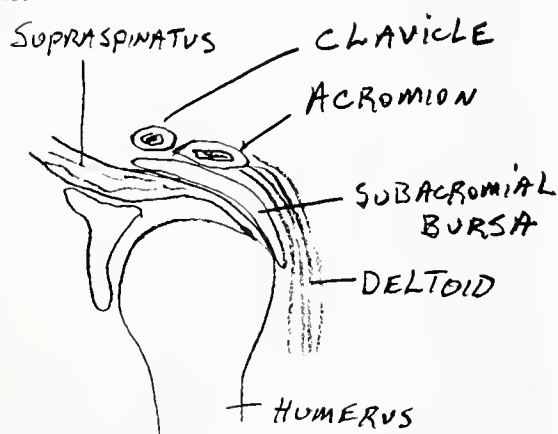


FIG. A: FRONTAL SECTION
THROUGH THE
SHOULDER JOINT

thought should be given to a tear of the tendon. This is best demonstrated by asking the patient to hold his arm up and straight out (or forward) from his body. If this maneuver cannot be performed, a tear must be presumed to be present. This can often be confirmed by procaine injection and arthrography. Complete tears require surgical intervention. Most usually, the symptoms are sub-acute or chronic in nature and represent the accumulative results of many small injuries. In this case, the usual maneuvers of the shoulder joint are limited by pain, not lack of continuity of the musculotendinous unit.

The supraspinatus is not the only important tendon in this area, but is more commonly involved in these previously described problems. It should be pointed out that this cuff is very important in the functional picture of the shoulder. It is the stabilizer of the head of the humerus, and without it the deltoid muscle function, providing abduction and flexion of the shoulder, is weakened.

This loss of function of deltoid and supraspinatus leads to stiffness of the gleno-humeral

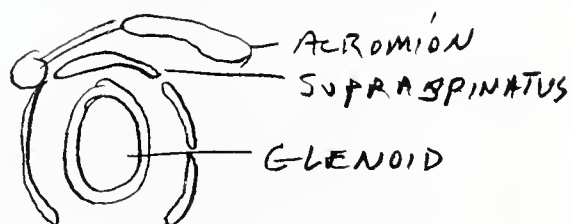


FIG. B. LATERAL VIEW
OF THE SHOULDER

(shoulder) joint and shortening of the fibers of the capsule of this joint.

Thus, the stage is set for a frozen shoulder because of a chronic cycle of stiffness leading to pain and pain leading to stiffness.

Then, to treat this problem, our attention must be directed to breaking up this cycle by relieving pain and restoring motion.

Analgesics, heat, and injectable corticosteroids (Fig. C) are available to obtain pain relief.

Active range of motion of the shoulder, and this is important, is the best way to stretch out the shortened capsular fibers. This exercise must be done by the patient so that he can gradually stretch, even if painful, the stiff joint. It is, unfortunately, necessary for the patient to tolerate some pain during the stretching process. This tolerance will be repaid later with a pain-free and smoothly functioning shoulder if the exercises are performed faithfully.

In conclusion, the irritated, frayed or ruptured supraspinatus tendon is responsible for a great amount of shoulder joint disability.

The pain-stiffness-pain cycle can be inter-

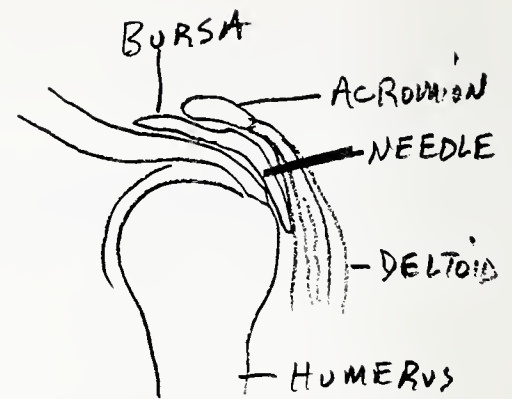


FIG. C. INJECTION OF
THE BURSA

rupted by pain relief with steroids (injected into the bursa) and an intensive exercise program.

BIBLIOGRAPHY

1. Anatomy for Surgeons: Back and Limbs. Hollingshead, Haebler-Harper, 1958.
2. The Diagnosis of Shoulder Lesions Due to Injuries of the Rotator Cuff. V. H. Ellis, J.B.J.S., Vol. 35B:72-74, Feb. 1953.
3. Adhesive Capsulitis of the Shoulder. Neviaser. AAOS Instructional Course Lectures 6:281, 1949.





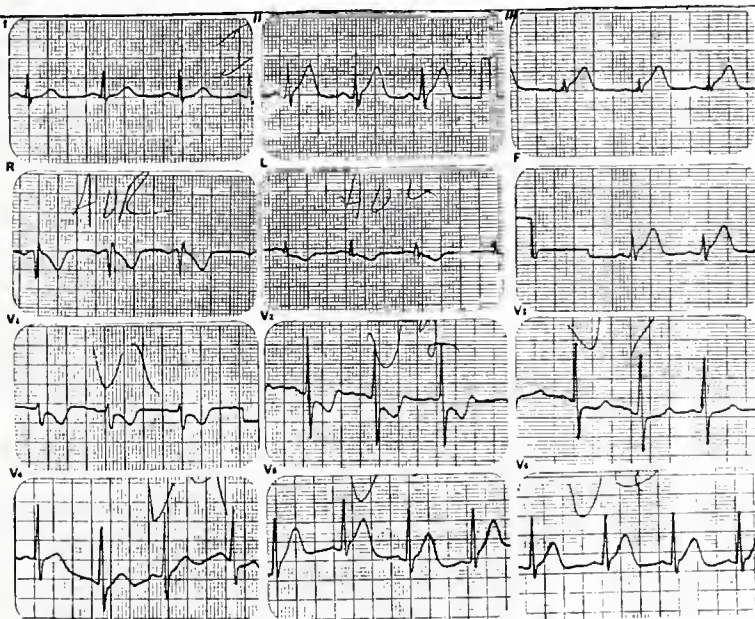
The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 357)

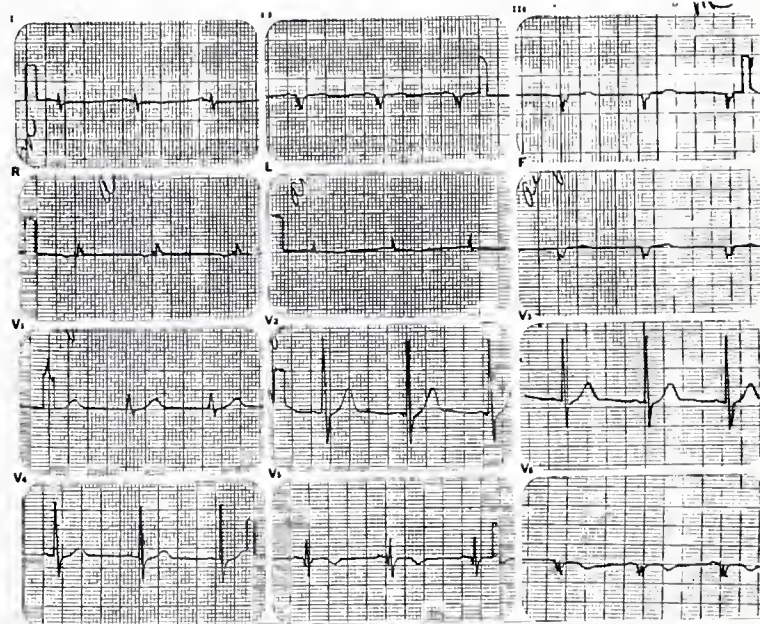
A 54-year-old man appears in the ER with chest pain and the following ECG is obtained. What would your diagnostic impression be?

The next morning the following ECG is obtained. What is your diagnosis now?

ECG #1.



ECG #2.



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PUBLIC HEALTH AT A GLANCE

Home Health Service

Bryant S. Swindoll, M.D.* and Rebecca A. Fortenbury**

Bedside nursing care is now available to your patient in his home for almost every county in Arkansas.

This service first became a part of the local public health nursing (county nurse) program in Arkansas less than six years ago but it is not a new practice in the United States. As long ago as 1898, the first official agency employed a nurse to give care to the sick in his home.

We may call it optimum care, progressive patient care, or continuity of care, but the main purpose for this referral is to help meet the medical needs of the patient. It also saves the busy physician's time by coordinating care and have the nurse report any change to him. Having skilled procedures available in the home can shorten the time that a patient must remain in an institution and permit the family to "cope" with the situation in its own environment. Care can be given when *all* the following conditions are met:

1. The patient's physician gives written orders for the service (nursing or physical therapy) and reviews them at two-month intervals if plan for care is to continue.
2. The patient is confined to his home by his illness and desires the services of the nurse or physical therapist.
3. Nurse determines that care can be safely given in individual patient's home.
4. There is a responsible person in the home to supplement the intermittent skilled nursing.

Examples of services performed at the *physician's written request* are:

1. Dressing of wounds.
2. Irrigations (wounds, colostomy, bladder).
3. New colostomy care and teaching.
4. Indwelling catheters (care and management).
5. Decubitus ulcers (care and management).
6. Medication (no intravenous medication is permitted by Agency Policy).
7. Teaching insulin injections and special diets.
8. Physical therapist evaluation, treatment or teaching by registered physical therapist in some counties.*
9. Speech therapy evaluation, treatment or teaching by a certified speech pathologist.
10. Personal care services by a home health aide in some counties.*
11. Medical social service in some counties.*

The above list suggests that teaching the patient or family member is a progressive part of the program. As the patient becomes more independent or the family assumes greater responsibility, the nurse is able to space her visits to longer intervals or withdraw her services altogether to serve others who have more acute needs.

Disposable sterile equipment such as catheter trays, catheters, dressings, and synthetic sheepskin simplifies home care and insures greater patient safety.

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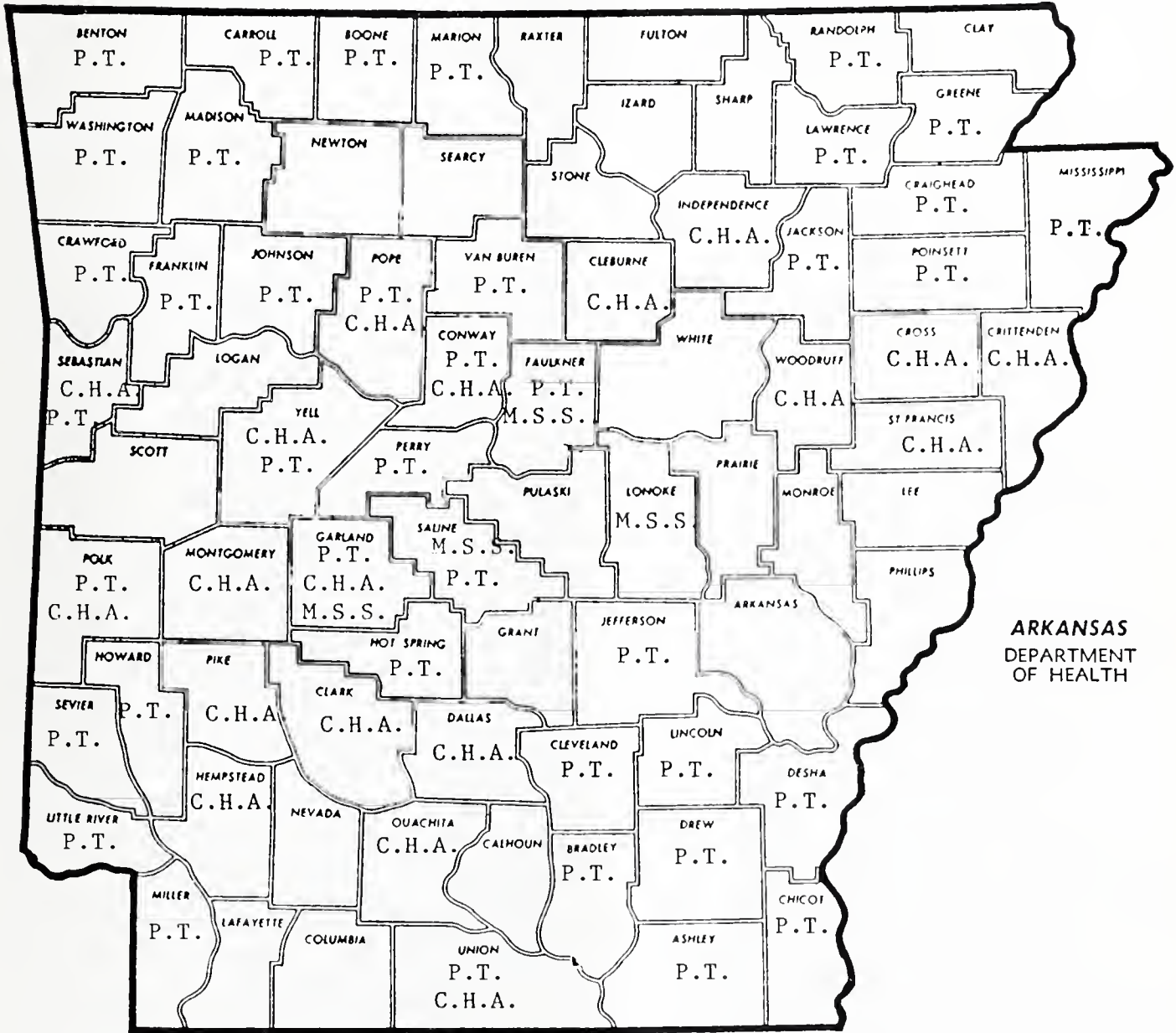
ARKANSAS PUBLIC HEALTH AT A GLANCE

In counties where most effective use is made of this service, there is a referral system from hospital rounds, utilization review, nursing homes, and doctors' offices.

If there is a full-time public health nurse in your county, contact her for details, or for more information you may contact Nursing Division, Arkansas Department of Health.

*See attached map for coverage of these services.

SECOND SERVICES



ARKANSAS
DEPARTMENT
OF HEALTH

All 75 counties have nursing and speech services
 Certain counties have additional services as indicated below:
 P.T. - Physical Therapy
 M.S.S. - Medical Social Service
 C.H.A. - Community Health Aide

2/10/76





EDITORIAL

An Energy Competent America

Alfred Kahn, Jr., M.D.

Energy and its use is intimately familiar to physicians — from Newton's Laws to the flow of electrons in biochemistry of muscle contraction and body work. A more mundane unit equally important facet of energy is the use of energy by the private citizen. The physician must be a leader in this area — interpretative and consultative. America is faced with an energy crisis which is very real. Currently, the U.S.A. is consuming 75 quadrillion BTU's of power per year. It is projected that the U.S.A. may use as much as 150 quads of BTU per year by the year 2000.

The big problem in becoming energy competent is to do so without it becoming the Trojan horse for socialism. Some persuasive authors on the subject have a frankly socialistic approach. For example, Professor E. F. Roberts reviewed Barry Commoner's book entitled *The Poverty of Power*. He was dismayed at Commoner's socialistic approach and entitled his review "An Energetic Call for Socialism" (*Natural History Magazine*, Vol. LXXXV, No. 8, Page 128, October, 1976). In this review, Professor Roberts quotes the New York Times as having stated "Thermodynamic Socialism: Read it for the science, pass up the economics." An energy competent America requires a concerted effort on the part of our scientists and our population at large — but it would be ruinous to have the energy problem used as a Fabian approach to socialism. With this warning in mind, the reader is commended to an article by Lovins.

Lovins, in an article on energy strategy, discusses some of the aspects of the energy crisis from his point of view. (*Foreign Affairs*, Volume 55, page 65, October, 1976). There are some cogent questions which he raises. First of all is the solution for our development to lie in trying

to increase our sources of energy, or to make better use of the current supply. Lovins favors the latter approach. He faults the belief that a herculean effort to increase the energy supply from coal, oil and gas, and nuclear energy is suitable — and probably it is not possible if we are to achieve other national aims. For example, he cites that further massive electrification might modify the infra structure of our industrial society and that the massive use of coal might double the carbon dioxide level in the next 15-20 years — or more. The use of nuclear fuels presents the problems of radioactive disposal, sabotage and natural security of an accident as the readers of the horror story "The Prometheus Crisis" (Scortia and Robinson, Bantam Books) will recall. On the other hand, any contemplative person should immediately remember and acknowledge the tremendous impetus to industrial development and the national prosperity that widespread electrification has brought America — a farm family is hardly likely to consider rural electrification impersonal, unsolicitous colossus; the same is true of the city dweller with his comfortable electrified home responsive to the touch of a button. Furthermore, his discussion is further vitiated by the fact that in Arkansas, and in most other states, the distribution of electrical energy is closely controlled by state committees that provide adequate and ample supervision of this industry's rates, customer areas, etc.

Lovins' view is certainly controversial, but it is this aspect which makes it important to present for acceptance or rejection — or some station in between. For example, he espouses what he calls soft technologies to supply energies — basically those that are flexible and benign as opposed to

hard technologies; the soft technologies are characterized by renewable energy flows (sun, wind, etc.), diverse sources, low skill rather than highly sophisticated, matching of energy level to geographic end use needs, and matching of energy quality to end use needs. He suggests that the closer the energy liberation is to the user the more flexible and the more economical it will be. He would prefer the consumer to directly burn a small quantity of fuel than to have it converted to an intermediate source such as electricity — which he believes, requires 3 units of fuel to produce 1 unit of energy — 2 units of waste heat. The reader may fault this in the context of a waste-benefit ratio in a growing population, but it is a very provocative argument (he dislikes fixed distribution costs, failure to use waste heat, etc.).

Assuming that our industries make a major effort to supply us with more energy the saving of energy can complement the other effort and physicians can lead in a number of respects. First of all, much of our energy is used to supply heat. Educational programs instructing the American public that 68° F. is just as healthy an environment as the former 75° F. can save a lot of fuel, particularly if it is coupled with energy saving construction as promoted by the Arkansas Power and Light Company. There is a place for high intensity lighting in the operating room, but not in corridors or other areas which are inappropriate for detailed observation and sight.

One great American failing is the over reliance on mechanical means of transportation. This is ingrained habit pattern as well as a result of our living farther and farther from the center of our cities. The byproduct of more walking and exercise is better health. And of course, more gasoline is saved. Why not smaller cars?

With regard to saving of gasoline, the medical profession must actively consult with our national health authorities on permissible automobile emissions. There is a balance which has to be struck between emission control which makes gasoline motors less efficient and the protection of our citizens from harmful amounts of nitrogen products, hydro carbons and carbon monoxide. It is very likely that there is adequate emission control at the present. Rushing further controls will certainly cause more fuel

expenditure without real health or smog benefit. Factory emissions may be very injurious to the lungs or other organs also. The effort to clean the factory wastes to a safe level should be continued despite the energy involved; the emphasis here should be to avoid the release of harmful fluid, solid and gaseous wastes into the environment — better burning of coal and oil, alternate energy sources when available in the future.

Physicians by virtue of their training know the permissible limits of various human exposures. They should be leaders in the effort to make our nation "energy competent" and "energy safe."



NOTICE

The State Medical Board will be late getting out its "Directory of Licentiatees" this year due to the State having to reject the first bids on printing of the directory. Another bidding is being advertised. The Board hopes to have the directory available sometime in April.

Joe Verser, M.D., Secretary
Arkansas State Medical Board



ANSWER—Electrocardiogram of the Month

#1. ST/T changes suggesting hyperacute pattern of infero-lateral myocardial infarction with possible posteriar wall involvement. Note the abnormal shape of the T wave and ST segment elevation in II, III, AVF and probably V₆. Also note, the ST depression in AVL, V₁-V₃, suggesting reciprocal changes. However, the ST depression is more marked in the V leads than would be expected with reciprocal changes alone suggesting that this ST depression is related to hyperacute changes of a posteriar wall involvement which are seen in the V₁₋₂ leads initially as ST depression with deep T inversion. One also must consider the possibility of pericarditis and evaluate in terms of a clinical setting.

#2. By the next morning the infero-lateral-posteriar infarction can be seen in the change of the QRS. The QRS axis has shifted markedly anterior superior and to the right. Q waves are seen in II, III, AVF, V₅, V₆; and R force has increased in V₁ and V₂, which is a posteriar wall Q equivalent. Note that the T axis has shifted anterior and is still somewhat infe.iar being directed primarily away from the lateral and posteriar area.

MEDICINE IN THE



THE MONTH IN WASHINGTON

The American Medical Association has assailed the government's release of the names of 995 physicians who last year received \$100,000 or more from the Medicaid program, terming the action "nothing less than an attempt at guilt by innuendo."

"It simply makes a tough practice tougher for the thousands of dedicated, honest ghetto physicians," declared James Sammons, M.D., Executive Vice President of the AMA.

A total of 2,533 Medicaid providers, including dentists, pharmacies and laboratories as well as physicians, was released by the Social and Rehabilitation Service (SRS) of the Health, Education and Welfare Department. The Agency said the list was requested under the Freedom of Information Act by news media and others. Under the Act, according to the Agency, the information must be provided.

"The fact that these medical providers received the stated amounts from the Medicaid program should not be construed as any evidence of wrongdoing, nor do amounts listed necessarily represent 'earnings' or 'profits,'" SRS spokesman said, adding that it had no information as to the size of staffs employed by the individual doctors, or the number of separate offices they may maintain.

In addition to the 995 physicians, there were 312 dentists, 127 labs, and 1,099 pharmacies on the list released by HEW. The physicians included 542 individual practices and 453 group practices.

States with the largest numbers of physicians on the list were California, 300; Illinois, 144; New York, 113; Michigan, 83; Texas, 62; Ohio, 41; and New Jersey, 28. The names and addresses of all physicians, including those in the group practices, were contained in the massive, inch-thick document.

AMA's Dr. Sammons asked, "Does HEW think these doctors are guilty of fraud? Then let HEW say so. Does HEW think they are guilty of viola-

tion of ethics? Then let them give us the names and we will investigate."

"The AMA favors prosecution to the fullest extent of the law of any person — physician or otherwise — who defrauds patients or the government," Dr. Sammons said, "but we are tired of doctors being made the whipping boy by publicity-seeking bureaucrats and politicians. If they want to clean up Medicaid and Medicare let them go after the Medicaid Mill and nursing home operators who prosper in every major city with political protection. That's the root of the corruption and the fraud and abuse.

"This releasing of names is nothing less than an attempt at guilt by innuendo. It simply makes a tough practice tougher for the thousands of dedicated, honest ghetto physicians. If HEW wants to drive medical care out of the ghetto completely, it has certainly hit upon a highly effective method."

* * * *

Patient package inserts for almost all drugs, one of the major demands of the consumer movement, with their attending problems and concerns, were discussed at a two-day symposium here recently. The session was sponsored by the AMA, the Drug Information Association, the Food and Drug Administration and the Pharmaceutical Manufacturers Association.

The patient insert should not be confused with the package insert. Years ago Congress approved the requirements for the package insert for prescription drugs, apparently in the mistaken belief much of this information would get to the patient. Most of it went to pharmacists; none was required to be given to patients.

There were hearings in the last Congress on legislation introduced in House and Senate aimed at providing patients, with certain exceptions, insert information on the prescription drugs they receive.

FDA Commissioner Alexander Schmidt, M.D., told the symposium the consumer has a right to know about the medicine he is taking. "There

is increasing evidence that a high proportion of Americans either do not understand the prescription instructions or do not follow them," Dr. Schmidt said. He contended there is a lack of effective communication often between physician and patient on drug information.

The information supplied patients must not be as detailed as the warnings required in advertising. This would be "an invitation to hypochondria," said Dr. Schmidt. Rather the information should be in plain English, factual, and explain why the drug is being taken, major side-effects to watch out for, and when to report reactions to the physician, according to the FDA chief.

William Barclay, M.D., AMA Group Vice President for Scientific Publications, said carefully prepared information about selected drugs is desirable and could be of service to patients, physicians and pharmacists. However, Dr. Barclay cautioned that there is a clear danger that the disclosure could be so alarming as to discourage use of drugs that are vitally needed.

One of the major questions to be answered is how the insert would be distributed. "Obviously, the physician would rather not have the responsibility of stocking in his office perhaps thousands of brochures," he said.

Of even greater importance, is the liability and other factors involved when physicians in certain cases for the sake of their patients either want no insert provided or want to suggest doses or other information that might run counter to the insert's material.

Dr. Barclay noted that labelling has had little effect on cigarette smoking. He also noted that one of the most powerful drugs available with all sorts of adverse reactions and addiction potential would not be covered by the patient insert — alcohol.

John Adams, PhD, Vice President of the PMA, said non-prescription drugs contain far more patient informational material than the stronger prescription drugs. However, the patient package insert could cause severe strain on the physician-patient relationship, he said. "An adequate explanation of the risks and benefits might be impossible in a brief description."

Joseph Onek, Counsel for the Center for Law and Social Policy, said physicians don't have the

time to tell their patients all they need to know about drugs. Patients forget anyway. He suggested that a priority list be made up for the inserts, starting with all drugs used in pregnancy, then tranquilizers and barbiturates.

* * * *

The Social Security Administration is asking the public for help on how much information, including medical data, should be disclosed from Social Security records.

"Social Security needs to change its regulation to make it conform with the Privacy Act, the Freedom of Information Act, and the new government in the Sunshine Act," a spokesman said.

"An important issue underlying these laws is the basic conflict between the public's right to know and the right of privacy of the people whose records are kept by Social Security," SSA Chief James Cardwell said. "We will need to resolve that conflict in our regulation, and we want the public's help."

Social Security said the revised regulation must address the basic information about an individual collected for purposes of administering the Social Security Act vs. interchange of such information with state or federal agencies to further efficient administration of other benefit programs, or to meet other government needs — a further concern is the public's right to know.

What personal information (including the Social Security Number) should be disclosed by SSA without the consent of the individual in the following situations:

- (a) for entitlement or potential entitlement to other local/state/federal benefits or service;
- (b) for investigative or prosecution purposes.

Among other questions posed were whether there should be limitations on disclosure of medical information to third parties and special procedures for disclosing medical information to the subject individual, and to make public fees paid to individual physicians, incorporated individual physicians, and other providers of medical services.

* * * *

The Public Health Service has changed the informal appeals system available to its grantees.

Now all discretionary project-grant programs will be eligible to informally appeal certain adverse, post-award decisions made by PHS Grants

Administrators. Previously, only specifically designated programs had access to the informal appeals system.

The final arbiter of disputes between HEW and grantees is the Department Grant Appeals Board. Grantees wishing to formally appeal disputed determinations to the Board must first exhaust any informal appeal procedures established by HEW's principal operating components.

* * * *

Anthony Curreri, M.D., has resigned as dean of the fledgling Uniformed Services University of Health Sciences to return to the University of Wisconsin as Evan Helfaer Professor of Surgery. Dr. Curreri, who has served two years with the military medical academy in Bethesda, MD, also has taken a position with the Veterans Administration's Middleton Memorial Hospital in Madison.

A search is on for a replacement for Dr. Curreri. Meantime, David Packard, Chairman of the military medical school's Board of Regents, will act as President. The post is one of the most attractive in government for a physician, paying \$70,000 annually, third highest pay in federal government for anyone.

The school opened its first class this year.

* * * *

That medicine has had little to do with the improvement in mankind's health over the past several hundred years was the attention getting gist of the opening address theme of the annual meeting of the Institute of Medicine here.

There was some sharp disagreement with the speech by Thomas McKeown, M.D., Professor of Medicine at the University of Birmingham, England, but Dr. McKeown insisted that "human health is determined mainly by way of life," not medical advances.

According to Dr. McKeown, the decline of mortality and growth of population started at the end of the 1600's when farmers began a more scientific and diligent approach to producing crops. "This increase in food supplies between the end of the 17th century and the mid-1800's coincided with a substantial reduction of mortality from infectious diseases — and, it is suggested, was the main reason for it."

Powerfully supporting this progress was improved hygiene affecting the quality of food and

water in the late 1800's, Dr. McKeown said. "The contribution of immunization and therapy has been recent and, over the whole period, relatively small."

The English physician said "that what is true for other living organisms is also true for man. Namely that health depends essentially on control of environmental influences, including those, which by his own behavior, the individual makes for himself."

Some institute members contended that Dr. McKeown was shortchanging the effect that immunizations and the post-1935 development of antibiotics, etc., have had on health. The speaker conceded that these have had a significant impact, but he said that in viewing huge population masses the new treatments do not loom large statistically in comparison with the general improvements in living conditions.

An analysis of the current burden of various illnesses in the U. S. based on use of medical services and facilities, loss of life and work time, was presented by Dorothy P. Rice, Director of the National Center for Health Statistics.

The rank order of categories of disease according to burden were: mental illness and handicap, respiratory diseases, ischaemic heart disease, bone and joint disease, accidents and suicide, and neoplasms.

The annual meeting concentrated on the state of treatment of schizophrenia, hypertension, and smoking and disease.

* * * *

"Airplane pilots need stricter physician examinations because medically unfit airmen continue to endanger themselves and the public," claims the General Accounting Office (GAO) in a report to Congress.

Most of the criticism was directed at private pilot screening but the GAO said that even commercial pilot tests are often less thorough than those for military pilots, air traffic controllers and foreign civilian pilots.

Better medical examination requirements would be especially helpful in singling out pilots with heart trouble, alcoholism and high blood pressure, the GAO said.

The report suggested there are some 23,000 private pilots "who may represent potential safety problems, including about 12,500 with

records of driving (autos) while intoxicated and 200 with physical disabilities which prevent them from driving an automobile," said the GAO.

The GAO, an investigative agency for Congress, proposed that the Federal Aviation Administration be allowed to review data of the National Highway Administration on withdrawal or denial of drivers' licenses for pilots.

Most scheduled U. S. airlines have tougher medical checks than required by federal law, but there is no requirement that the airlines notify the government when pilots with FAA medical certificates flunk their airline physicals, according to the GAO.

The GAO report and the recent publication of several books questioning airline safety and pilot reliability may lead to Congressional hearings in 1977.

* * * *

Moving to carry out a new federal law, HEW has made appointments designed to give higher priority to health education, health promotion, and disease prevention activities.

The new law, the National Consumer Health Information and Promotion Act, was approved by the Congress last summer.

Assistant Secretary for Health, Theodore Cooper, M.D., announced that Roger O. Egeberg, M.D., Special Assistant to the Secretary for Health Policy, will serve as his special assistant for health education.

A staff office — the Office of Health Information and Health Promotion — will be set up in the office of the Assistant Secretary for Health. Named as interim director of that office was Ms. Jane Fullarton.

Dr. Egeberg will have overall responsibility for health education policy and for developing better working relationships with outside organizations engaged in health education activities.

The new law directs the office of health information and health promotion to:

- coordinate health information;
- coordinate such activities with the private sector;
- facilitate coordination with other federal agencies, and professional organizations, and public interest groups;
- and, coordinate the operation of a national

clearinghouse on health information, promotion, and prevention activities.

Ms. Fullarton is currently the director of the Division of Health Research, Office of Policy Development and Planning, Office of the Assistant Secretary for Health.

* * * *

A National Academy of Sciences panel has called for a 10 percent decrease in the ratio of hospital beds to population. Claiming that a surplus of short term general care beds is contributing to higher medical costs. The panel said a national health planning goal should be to reduce the present ratio of 4.4 beds per 1,000 persons to 4.0 by 1981.

This would be accomplished by curtailing hospital construction and closing down some existing hospital facilities.

Panel member John D. Thompson, M.S., of Yale University estimates that about 50,000 hospital beds which are now either in use or slated for construction would have to be eliminated. He and the panel stressed the need for waiting periods for elective surgery as a way to increase hospital efficiency and occupancy rates.

The report, sponsored by the Academy's Institute of Medicine, also recommends shifting from the present system of retrospective cost reimbursement to a prospective rate-setting system. The report states the present third-party system "virtually guarantees the widespread development of excess bed capacity and encourages unnecessary and inappropriate treatment."

Three of the 11 panel members dissented from some or all of the report's conclusions. The major dissent came from Donald G. Shropshire, administrator of the Tucson Medical Center and a representative of the American Hospital Association, who wrote "too much of the blame for costs is being put on beds . . . the recommended arbitrary formula . . . has no real basis in fact."

* * * *

ARKANSAS PHYSICIANS REQUIRED TO REPORT FILINGS OF MALPRACTICE CLAIMS

Act 306 of 1975 requires every physician licensed to practice in the State of Arkansas to report to the Arkansas State Medical Board when a claim is filed against him charging medical malpractice. The physician must report the filing of the claim to the Board within ten days of noti-

cation of such filing.

The State Medical Board has developed a form for reporting by physicians. The form is reproduced below. It should be completed and forwarded to Joe Verser, M.D., Secretary, Arkansas State Medical Board, Post Office Box 102, Harrisburg, Arkansas 72432.

1. Name and address of person filing this report
2. Name of claimant
3. Claimant's attorney
4. Residence of Claimant
5. Has claim been reduced to lawsuit?
6. If answer to #5 is yes, in what Court is lawsuit filed?
- (a) Please attach copy of complaint filed.
7. Amount of claim
8. Brief statement of Act(s) of malpractice alleged to have been committed by you
9. Do you have malpractice insurance?
10. With what company?
11. Amount of coverage
12. Annual premium
13. Has settlement been made?
14. Amount of settlement?

* * * *

SURRENDER OF PHYSICIAN CERTIFICATE OF REGISTRATION TO DRUG ENFORCEMENT ADMINISTRATION

Physicians should follow the procedures outlined below to comply with requirements for voluntary surrender of Drug Enforcement Administration registration.

1. You must deliver in person your Certificate of Registration (DEA Form 223) and any unused Schedule II order forms (DEA Form 222c) to the nearest DEA Office, or to the Division of Drug Control, Arkansas Department of Health. A DEA Official or Drug Control Official of the Arkansas Department of Health will accept your surrendered documents and have you sign a Voluntary Surrender of Controlled Substances Privileges Form (DEA Form 104).

2. You must also surrender any controlled substances in your possession to the Division of Drug Control, Arkansas Department of Health, or transfer them to another DEA Registrant. A receipt will be issued to you for drugs surrendered and a copy will be sent to the Arkansas Office of the DEA.

3. Upon surrender of the above, if you are permitted by your licensing board to register for any other controlled substances privileges, you should obtain an application form (DEA Form 224) and apply for DEA Registration for those schedule drugs permitted.

4. At the time of surrender of your DEA Registration you may *NOT* write *ANY* controlled substance prescription or have in your possession *ANY* controlled substances, and you must mark out your DEA Registration number on any prescription blank that you use to write prescriptions. No controlled drug may be in your possession or purchased, prescribed or administered without a valid DEA Registration.

5. You must notify in writing the hospital in which you practice, and all the local pharmacists that you no longer have a valid DEA Registration, and that you may no longer be able to authorize refills of prescriptions for controlled substances for your patients.

6. Section 401 (a) of the Controlled Substances Act, provides that violations committed knowingly and intentionally carry up to a maximum 15 years imprisonment penalty and/or up to a \$25,000 fine.

The address of the Drug Enforcement Administration is 1 Union Plaza, Suite 850, Little Rock, Arkansas 72201.



OBITUARY

HOYT LEON CHOATE, M.D.

Dr. Hoyt Choate, retired obstetrician from Little Rock, died November 23, 1976.

Dr. Choate, a native son of Arkansas, was born at Blue Mountain on August 23, 1903. He earned

his Bachelor of Arts degree at Hendrix College in 1924 and graduated from the University of Arkansas Medical School in 1928. He began his practice in obstetrics in 1930 in Little Rock and was a leader in this specialty in the State. Dr. Choate was a staff member of both the Arkansas Baptist Hospital and St. Vincent's Infirmary. He was Chief of Staff for two years at Baptist Hospital and Chief of the OB-GYN Section at the

Baptist Hospital for eight years.

Dr. Choate was a past president of the Pulaski County Medical Society.

Dr. Choate is survived by his widow, Mrs. Lois Jean Ross Choate; three sons, Phillip of Waco, Texas, John of Little Rock, and Stephen of Heber Springs; a daughter, Mrs. Martha C. Jenkins of Lexington, Kentucky, and eight grandchildren.



PERSONAL AND NEWS ITEMS

Drs. Thomas Bruce and Ben Saltzman Special Guests at Newton County Medical Center

Dr. Thomas Bruce, Dean, and Dr. Ben Saltzman, Professor of Community Medicine, of the University of Arkansas College of Medicine, were special guests attending the open house at the Newton County Medical Center in Jasper. Dr. Jean Gladden of Harrison was also in attendance.

The medical center, built in 1970, now has two full-time physicians, Drs. Nancy and Harold Haller, and a part-time physician, Dr. William A. Hudson.

Drs. Blackburn and Fisher Speakers at Hope Kiwanis Meeting

Dr. Jim Blackburn, clinical director of the Ark-Tex Center for Human Services, and Dr. Donald E. Fisher, staff psychiatrist at the Center, located in Texarkana, were featured speakers recently for the Hope Kiwanis Club. They explained the Center's function, set-up, and answered questions from the members in attendance.

Drs. Harmon and Allen Featured In Publication

Drs. Harry Mac Harmon and Barry Allen, pediatricians in Rogers, were recently featured in a monthly magazine of the Rogers Sunday News, "Seasons." Under the guidance of both doctors a unique intensive care nursery has been created in the Rogers Memorial Hospital. Drs. Harmon and Allen are both natives of Corning.

Drs. Lawson and Miller Become Fellows

The American College of Chest Physicians recently inducted two Arkansans as new Fellows of the College: Dr. Noel W. Lawson of Little Rock and Dr. Donald L. Miller of Pine Bluff.

Dr. Carroll Dodd Retires

Dr. W. Carroll Dodd of Bald Knob has retired from active practice. Dr. Dodd intends to pursue his favorite hobby of fishing but has not made any definite plans for the future. Dr. Dodd practiced medicine in Bald Knob for 35 years and is a native of that community.

Dr. Rosenzweig Retires From Private Practice

Dr. Joseph L. Rosenzweig of Hot Springs has retired from private practice of pediatrics in Hot Springs. He has accepted the position of coordinator for the Rehabilitation Center's Medical Services. He plans to continue his work with the Crippled Children's program in Arkansas.



RESOLUTIONS



DR. HOLDEN C. McCRANEY

WHEREAS, God, in His infinite mercy, has seen fit to call from our midst, Dr. Holden C. McCraney, and

RESOLUTIONS

WHEREAS, Dr. McCraney has faithfully served his patients and the community at large throughout his entire medical career, and

WHEREAS, Dr. McCraney, during his years of practice has reflected the highest ideals of his profession, and

WHEREAS, in his devotion to family, church and friends, he exemplified the best in man, and

WHEREAS, the Sebastian County Medical Society mourns his loss,

THEREFORE, BE IT RESOLVED, that the Sebastian County Medical Society, in its regular meeting on December 14, 1976, hereby adopts this resolution and directs that a copy be spread on the minutes of the Society, that a copy be furnished the family, and that a copy be published in the Journal of the Arkansas Medical Society.

SIGNED: S. W. Hawkins, M.D.

President,

Sebastian County Medical Society

Fort Smith, Arkansas

HOYT L. CHOATE, M.D.

WHEREAS, the members of the Pulaski County Medical Society are deeply saddened by the recent death of our esteemed colleague, Hoyt

L. Choate, M.D., and

WHEREAS, Dr. Choate became a member of this Society forty-eight years ago and his devotion to the affairs of the Society were ceaseless until his death, and

WHEREAS, he was recognized for his leadership by being elected President of the Society in 1958, and

WHEREAS, Dr. Choate will be remembered best for his devotion to the well-being of his patients,

BE IT THEREFORE RESOLVED,

THAT, this resolution be made a part of the permanent records of this Society, and

THAT, Dr. Choate's family be sent a copy of this resolution as an expression of our heartfelt sympathy, and

THAT, a copy be sent to the Journal of the Arkansas Medical Society for publication.

By Direction of the Memorials Committee

T. Duel Brown, M.D., Chairman

Robert Watson, M.D.

Henry Hollenberg, M.D.

APPROVED: December 15, 1976 by the

Executive Committee, Pulaski

County Medical Society



THINGS TO COME



UAMS Continuing Education For Physicians, February and March, 1977

FEBRUARY

24th "ADVANCED MULTI-DISCIPLINARY PSYCHIATRIC SEMINAR," Dr. Robert Matthews, Program Director. Course runs through May 12, 1977; regular weekly intervals. For further information contact Dr. Matthews, Dept. of Psychiatry, 661-5903.

25th "SIXTH NEONATAL SEMINAR," Dr. Alice Beard, Program Director.

MARCH

11-12th "ORTHOPAEDIC SEMINAR FOR

FAMILY PHYSICIANS," Dr. Carl Nelson, Program Director.

11th "HARA LECTURE," Dr. Gilbert Campbell, Program Director, UAMS, Little Rock.

11-12th "ANNUAL SURGICAL SYMPOSIUM," Dr. Gilbert Campbell, Program Director. To be given in Hot Springs.

25-26th "GI FOR PRACTICING PHYSICIANS," Dr. Clinton Texter, Program Director.

There are instances where programs are presented at the UAMS and not published in the Journal due to the printing deadline. You may obtain these dates, locations, and other information through the Continuing Education Office, 4301 West Markham, Little Rock 72201, or call toll free 1-800-482-9612.

Symposium on Endocrine Causes of Menstrual Disorders — March 16th - 18th, 1977

The University of Tennessee Center for Health

Sciences, College of Medicine, will present a symposium on endocrine causes of menstrual disorders March 16th through 18th, 1977, at the Hilton Inn in Memphis, Tennessee. This will cover subjects of normal events, central nervous systems disorders, ovarian disorders, pituitary disorders, and a special lecture by Dr. Roy O. Greep "To Reproduce Or Not."

This is a postgraduate course for practicing physicians and approved for 20 elective hours by the AAFP. For further information contact:

Division for Continuing Education
University of Tennessee Center for
Health Sciences
800 Madison Avenue
Memphis, Tennessee 38163
or call 901 528-5547

Emergency Medicine: Clinical - Radiological Correlation

Interspecialty postgraduate seminar will be presented March 18-20, 1977, at Pointe West Resort in Phoenix, Arizona. Content will be directed to radiologists and emergency room physicians. The course is approved for 14 hours of Category I, American Medical Association Credits. Tuition is \$110.00.

For further information write:

Austin R. Sandrock, M.D., Program Director
Chairman, Department of Radiology
Maricopa County General Hospital
2601 East Roosevelt
Phoenix, Arizona 85008

Trauma Symposium, March 27 through 31st, New Orleans

The 40th Annual New Orleans Graduate Medical Assembly will present the Trauma Symposium on Sunday, March 27th, 1977, at 1:00 to 5:00 P.M. in the Fairmont Hotel in New Orleans. The registration fee is \$125.00. Hotel reservations should be made at the Fairmont as early as possible. Call toll free 800-527-4727.

For further information, write:

THE NOGMA
Room 1538
1430 Tulane Avenue
New Orleans, La. 70112
or call: 504-525-9930

Symposium on Alcoholism To Be Held In Dallas

The Methodist Hospitals of Dallas, Texas, will present a symposium on the "Scope of Alcohol-

ism," April 28, 1977, at the Methodist Hospital of Dallas, 301 West Colorado, Weiss Auditorium.

This will be a one-day symposium aimed to help professionals with diagnosis, prognosis, and treatment of alcoholism. It qualifies for Category I Continuing Medical Education credit by the American Medical Association.

For further information contact:

Joyce Lebovitz, Director of Social Services
Post Office Box 5999
Dallas, Texas 75222
or call: 214-946-8181, extension 461 and 555

Second National Conference on Human Values and Cancer

The American Cancer Society will present the Second National Conference on Human Values and Cancer on September 7-9, 1977, at the Palmer House in Chicago, Illinois. This conference will explore the impact of cancer on the patient, the family and the professionals who treat the patient. Emphasis will be placed on interpersonal relationships, rehabilitation, employability, insurability, the patient's right to know his diagnosis and prognosis, his spiritual needs and his hopes for dramatic cures.

Attendance is open to all members and students of the medical and related health professions, as well as laymen interested in understanding the changing role the cancer patient is assuming in our society due to the major advances achieved in diagnosis and treatment during recent years.

Advance registration is requested. There is no registration fee.

For further information write to:

American Cancer Society
Second National Conference on
Human Values and Cancer
77 Third Avenue
New York, New York 10017

★ ★ ★ ★ ★

The University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute offers a formal course in MAMMOGRAPHY TRAINING FOR THE EARLY DETECTION OF BREAST CANCER on a continuing basis. Presented under the aegis of the American College of Radiology and the National Cancer Institute (Contract #NO1-CN-55250), the course provides continuing education for practicing radiologists, radiologists-in-training, residents, other interested physicians, and technologists,

registered or in-training, in film mammography, xeroradiography, or thermography. The program is under the supervision of Gerald D. Dodd, M.D. and David D. Paulus, M.D.

Held semi-monthly for five continuous days, 35 total course hours, the course includes lectures, audiovisual presentations, participation in routine patient examinations, review of teaching files and proven case materials, and daily round table discussions. Our curriculum may be adapted to individual trainee's previous experience and future needs. No registration fee is required. Credit approved: Category I, AMA Physicians Recognition Award, American College of Radiology, Hour for Hour; Evidence of Continu-

ing Education, American Society of Radiologic Technologists, One Point per Hour.

Courses have been scheduled through June, 1977:

PHYSICIAN COURSES BEGIN: 1-3, 1-10, 2-7, 2-14, 3-21, 4-4, 4-18, 5-9, 5-16, 6-6, 6-13.

TECHNOLOGIST COURSES BEGIN: 1-24, 2-21, 3-28, 4-25, 5-23, 6-27.

For further information write to:

Dawn Nevling Shull
Dept. of Diagnostic Radiology
The University of Texas System
Cancer Center
Texas Medical Center
Houston, Texas 77030



CHET J. JANECKI, M.D.

The Pulaski County Medical Society has accepted Dr. Chet J. Janecki as a new member.

Dr. Janecki was born in Buffalo, New York, and attended Canisius College in Buffalo, receiving his B.S. degree in 1964. He received his M.D. degree from the University of Rochester in Rochester, New York. He served an internship and residency at the Cleveland Clinic Foundation in Cleveland, Ohio, in both Internal Medicine and Orthopaedic Surgery.

Dr. Janecki is Board Certified by the American Board of Orthopaedic Surgery and is Assistant Professor at the University of Arkansas College of Medicine.

FREDERICK EUGENE JOYCE, M.D.

Dr. Frederick E. Joyce has been accepted into membership by the Miller County Medical Society. Dr. Joyce was born in Shreveport, Louisiana, and received his B.A. from Vanderbilt University. His M.D. degree was earned at the University of Arkansas and he interned at the University of Colorado. His residency was at the University of Arkansas and the University of Minnesota. He served his country in the United States Army.

Dr. Joyce was in General Practice for three years at Fayetteville and has been in Texarkana for six months. He is associated with St. Michael's Hospital in Texarkana in the Department of Pathology.

Dr. Joyce is certified by the Board of Ameri-



NEW MEMBERS

JAMES ALLEN ARNOLD, M.D.

Dr. James Arnold is a new member of the Washington County Medical Society. He is a native of Iowa and attended the University of Iowa where he received his M.D. degree. His internship was at the Butterfield Hospital in Grand Rapids, Michigan, from 1968 to 1969. Dr. Arnold was in residency at the University of Arkansas Medical Center from 1972 to 1975.

Dr. Arnold is associated with the Orthopaedic-Neurological Clinic at 2907 East Joyce in Fayetteville. His specialty is Orthopaedic Surgery.

Prior to coming to Arkansas, Dr. Arnold was in a six-month Sports Medicine Fellowship in Denver, Colorado. He holds a teaching appointment at the University of Arkansas College of Medicine.

Dr. Arnold is Board Certified and a member of the Arkansas Orthopaedic Society.

can Pathology and Clinical Pathologist and is a member of the College of American Pathologists.

VINCENT BRIAN RUNNELS, M.D.

Dr. Vincent Brian Runnels has been accepted into membership by the Washington County Medical Society. He is a native of Arkansas, born in Hot Springs on July 11, 1943. He attended Purdue University at Indianapolis, receiving his B.S. degree in 1964. His M.D. degree was obtained from the University of Indiana in Indianapolis in 1968. Dr. Runnels interned at Methodist Hospital in Indianapolis and had residency training in neurology at the Indiana University Hospital, and then in neurosurgery at the University of California at Davis.

Dr. Runnels served his country in the United States Army from 1974 to 1976. He was with the 121st Evacuation Hospital in Seoul, Korea, from 1974 to 1975, and the Fitzsimmons Army Medical Center in Denver, Colorado, from 1975 to 1976.

Dr. Runnels is associated with Drs. James A. Arnold, Jorge H. Johnson, Tom P. Coker, Coy C. Kaylor, and James F. Moore in the Orthopaedic-Neurologic Clinic, located at 2907 East Joyce in Fayetteville. Dr. Runnels is a neurosurgeon and is board eligible.

GAIL EISENHAUER SMITH

Pulaski County Medical Society has accepted into membership Gail E. Smith, a sophomore

medical student at the University of Arkansas College of Medicine.



AMA-ERF CHRISTMAS SHARING CARD

The Arkansas Medical Society Auxiliary again sponsored an AMA-ERF greeting card for Christmas 1976. Proceeds from the project provide financial assistance to the University of Arkansas College of Medicine.

Names of contributing families were inadvertently omitted. The Auxiliary wants the physicians and their families to know that the following should have been included in the list of contributors to the greeting card:

Dr. and Mrs. Hal Black, Little Rock

Dr. and Mrs. Hal Dildy, Little Rock

The Auxiliary AMA-ERF Committee expresses thanks to all who participated in the "sharing card."



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* * * * *

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ROBERT L. FINCHER, M.D.

DOYNE DODD, M.D.

H. W. McADOO, JR., M.D.

HENRY A. LILE, M.D.



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ANTIMINTH® (pyrantel pamoate)

ORAL SUSPENSION

Actions. Antiminth (pyrantel pamoate) has demonstrated anthelmintic activity against *Enterobius vermicularis* (pinworm) and *Ascaris lumbricoides* (roundworm). The anthelmintic action is probably due to the neuromuscular blocking property of the drug.

Antiminth is partially absorbed after an oral dose. Plasma levels of unchanged drug are low. Peak levels (0.05-0.13 µg/ml) are reached in 1-3 hours. Quantities greater than 50% of administered drug are excreted in feces as the unchanged form, whereas only 7% or less of the dose is found in urine as the unchanged form of the drug and its metabolites.

Indications. For the treatment of ascariasis (roundworm infection) and enterobiasis (pinworm infection).

Warnings. *Usage in Pregnancy:* Reproduction studies have been performed in animals and there was no evidence of propensity for harm to the fetus. The relevance to the human is not known.

There is no experience in pregnant women who have received this drug.

The drug has not been extensively studied in children under two years; therefore, in the treatment of children under the age of two years, the relative benefit/risk should be considered.

Precautions. Minor transient elevations of SGOT have occurred in a small percentage of patients. Therefore, this drug should be used with caution in patients with preexisting liver dysfunction.

Adverse Reactions. The most frequently encountered adverse reactions are related to the gastrointestinal system.

Gastrointestinal and hepatic reactions: anorexia, nausea, vomiting, gastralgia, abdominal cramps, diarrhea and tenesmus, transient elevation of SGOT.

CNS reactions: headache, dizziness, drowsiness, and insomnia. Skin reactions: rashes.

Dosage and Administration. *Children and Adults:* Antiminth Oral Suspension (50 mg of pyrantel base/ml) should be administered in a single dose of 11 mg of pyrantel base per kg of body weight (or 5 mg/lb.); maximum total dose 1 gram. This corresponds to a simplified dosage regimen of 1 ml of Antiminth per 10 lb. of body weight. (One teaspoonful=5 ml.)

Antiminth (pyrantel pamoate) Oral Suspension may be administered without regard to ingestion of food or time of day, and purging is not necessary prior to, during, or after therapy. It may be taken with milk or fruit juices.

How Supplied. Antiminth Oral Suspension is available as a pleasant tasting caramel-flavored suspension which contains the equivalent of 50 mg pyrantel base per ml, supplied in 60 ml bottles and Unitcups™ of 5 ml in packages of 12.

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March, 1977

THE JOURNAL OF THE

Arkansas MEDICAL SOCIETY *Journal.*

Vol. 73 No. 10

FORT SMITH, ARKANSAS

101st ANNUAL SESSION
ARKANSAS MEDICAL SOCIETY
LITTLE ROCK CONVENTION CENTER, APRIL 24-27, 1977

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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.



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Cardiological Update — A Compendium of the Last Year's Experience**

John E. Douglas, M.D.*

Earlier today, Dr. Campbell gave you an overview of the historical milestones in the treatment of cardiovascular disease. The purpose of this paper is to review recent advances made in diagnostic and therapeutic cardiology, and possibly clear up a few misconceptions that have crept in en route. It is not my intent to provide a comprehensive review of this multi-faceted subject.

AUSCULTATION

In 1816, Rene Laennec rolled a quire of paper into a cylinder to use it as an extension of his ear to facilitate listening to a young woman's heart. Mores of the time prevented him from using the customary direct application of the ear to chest wall of this very obese woman. Laennec was surprised and delighted "to find that I could thereby perceive the action of the heart in a manner much more clear and distinct than I had ever been able to do by the immediate application of the ear." Although the science of heart sounds has progressed a great deal in the last century and a half, the consistency and accuracy of the utilization of auscultation is sporadic and often given only token attention. Dr. Sanderson of Washington, D. C., has recently written a delightful and very practical article on a "Handy Heart Sound Simulator."¹ Basically, this consists of your two ears, two hands and a stethoscope. With these simple tools he has demonstrated the ability to imitate most of the auscultatory sounds confronting the internist. I commend his article to you.

The second heart sound has been a source of much confusion but may provide a wealth of information. Physical diagnostic textbooks two decades ago frequently distinguished A2 from

P2 on a geographic basis. This was incorrect. A2 is not the second heart sound in the aortic area and P2 is not the second heart sound in the pulmonic area. Rather the second heart sound normally is made of two components, the first of which is the aortic and the second the pulmonic. The pulmonic is usually best heard in the pulmonic area, and the relative intensity of the two components is usually compared at that geographic point. Figure 1 is a phonocardiogram on a patient with marked pulmonary hypertension with an accentuated P2.

Normally, the relative position of the aortic and pulmonic components of the second heart sound change with the respiratory cycle. With inspiration they spread apart, with expiration they may converge. This is referred to as "physiological splitting." Patients with significant atrial septal defects usually have fixed splitting of their second heart sound, failing to converge A2 and P2 even with a valsalva maneuver. Patients with right bundle branch block may mimic this phenomenon, but the degree of separation of A2 and P2 is less consistent than in patients with significant left to right shunts at the atrial level. Figure 2 demonstrates fixed splitting of the second heart sound in a patient with an atrial septal defect.

Confusing intercardiac murmurs with pericardial friction rubs is probably a more common mistake than most of us wish to acknowledge. Although the three component friction rub is the classic description, a two component or single component rub is the more common presentation. To confuse the two in the setting of a 35-year-old male, having chest pain, might cause the patient with a viral pericarditis to be misdiagnosed as having coronary artery disease and thereafter subjected to many employment and insurance restrictions. This is particularly apt

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**Presented at the 100th Annual Meeting of the Arkansas Medical Society, April 25-28, 1976, Hot Springs, Arkansas.

to occur when pericarditis is associated with electrocardiographic changes in the ST and T segments.

ELECTROCARDIOGRAPH
At the turn of the century, William Einthoven provided physicians a practical tool for electro-

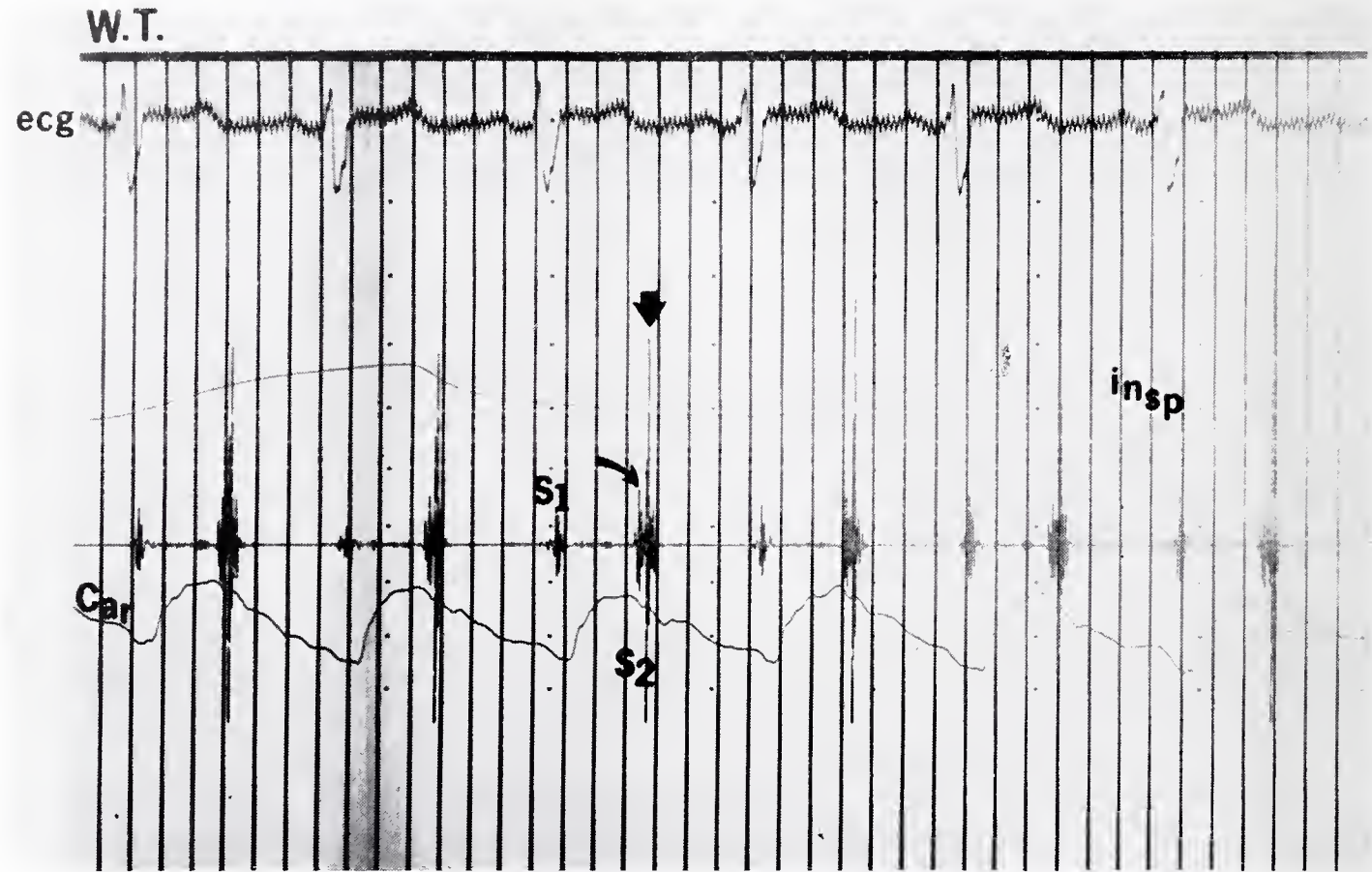


Figure 1.

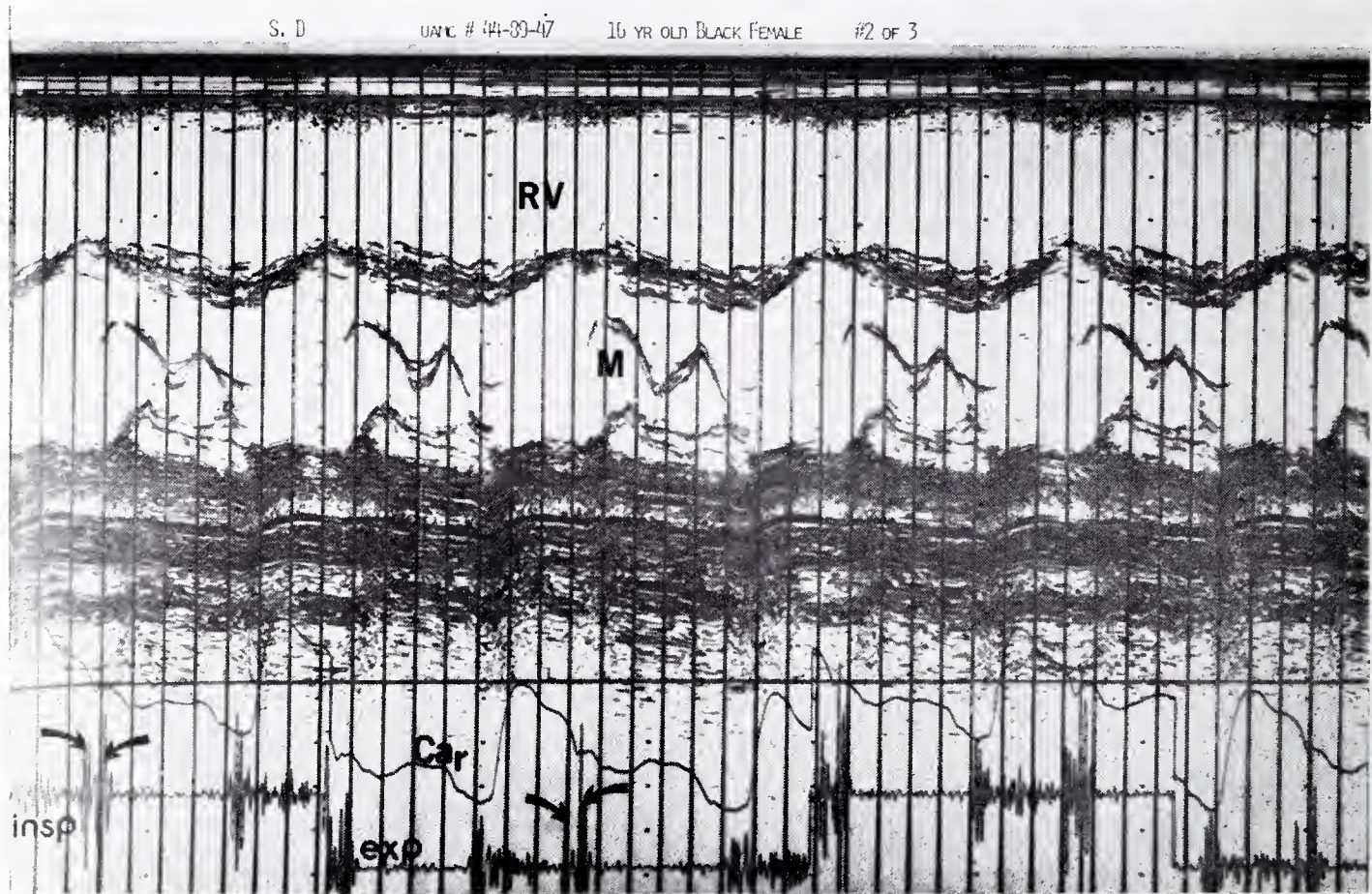


Figure 2.

cardiography. This instrument has become the cornerstone of much of cardiology and regrettably frequently supercedes the use of histories and physical exams. Three areas of basic electrocardiography, nonetheless often cause confusion. In 1927, Wenkebach described the form of second degree AV block wherein the PR interval progressively increases until a ventricular beat is dropped. The more recent terminology for this type of second block is MOBITZ I block. In Figure 3 the phenomenon is easily discerned. In Figure 4 because of the relatively long sequence of beats with prolonged PR intervals before the dropped beat, the presence of MOBITZ I block could easily be missed. The grouping of 2, 3, 4, or 5 QRS complexes separated by pauses should be an immediate clue to the probable presence of a supraventricular rhythm with a varying degree of block. (Wenkebach periodicity)

A second area of electrocardiographic confusion stems from the terms third degree heart block and AV dissociation. As the Venn diagram in Figure 5 indicates all B may be A, but not all A is B. The same is true for AV dissociation and

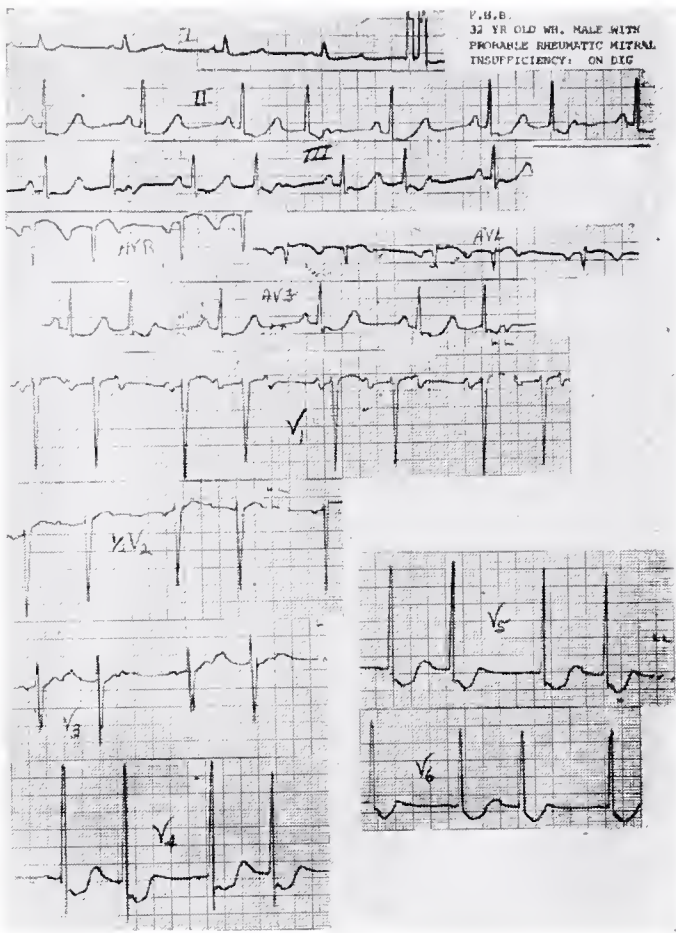


Figure 3.

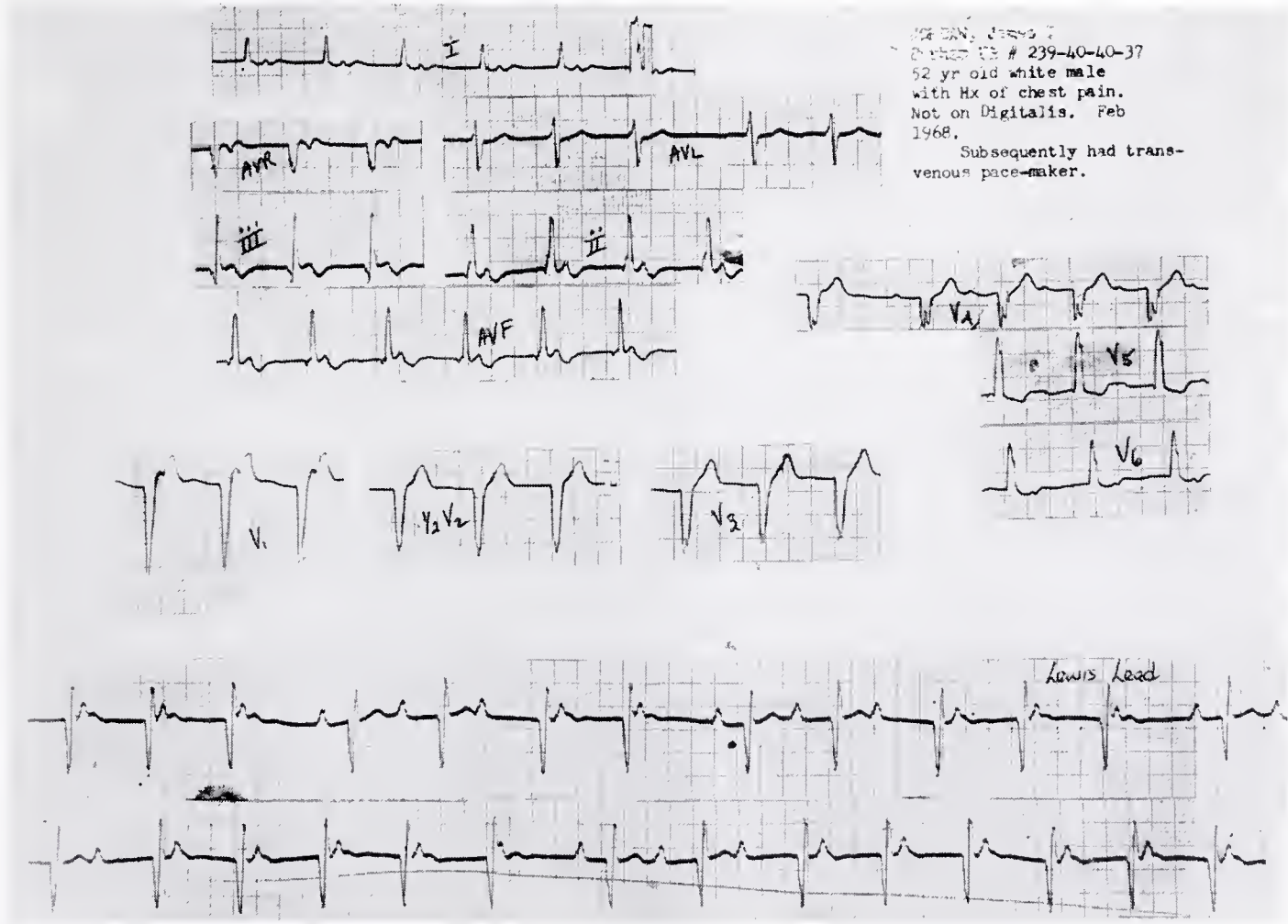


Figure 4.

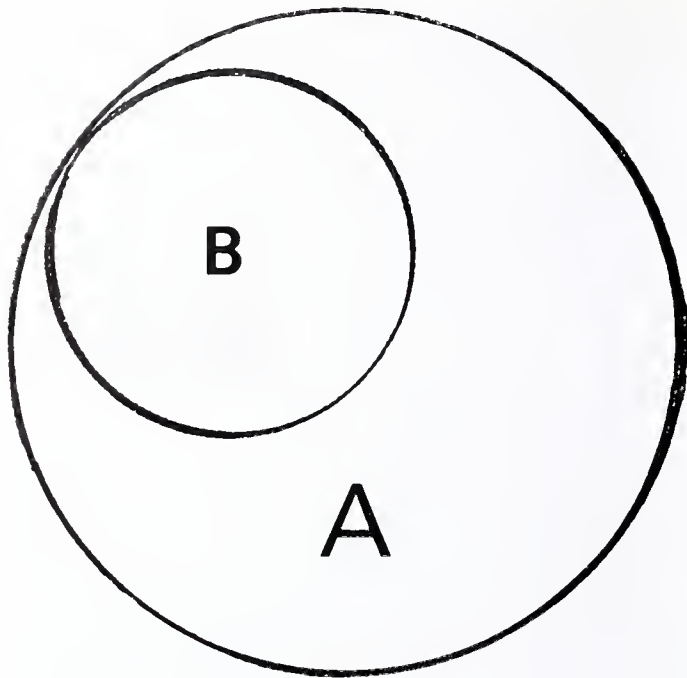


Figure 5.

third degree heart block. Third degree heart block represents a form of AV dissociation. There are several forms of AV dissociation which are not third degree heart block. Figure 6 represents a good example of AV dissociation without problems in AV conduction which is implicit in the term "third degree heart block." In this example, the sinus rhythm slows below that of the junctional pacemaker which intermittently captures and drives the ventricle. However, when the atrial depolarization occurs at a rate exceeding the junctional pacemaker it is able to capture the ventricle. Thus, the AV node easily transmits signals coming from above, indicating the absence of heart block, but when the lower pacemaker supervenes there is AV dissociation.

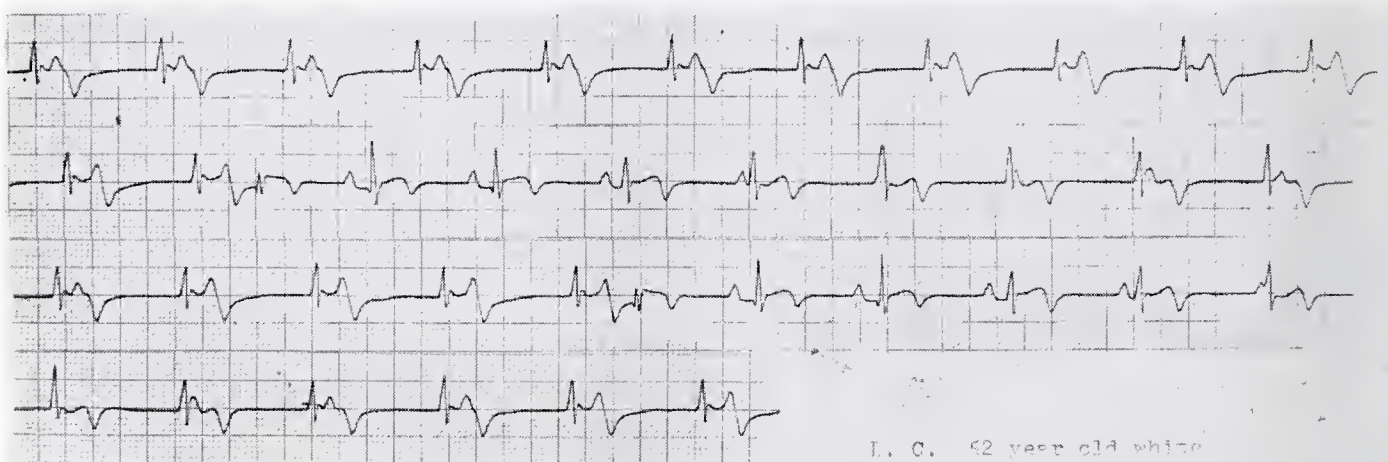
ECG STRESS TESTING

In 1928, Feil and Segal first described ST segment changes during exercise induced angina. In that year a vigorous young athlete was referred to Dr. White's laboratory;

"because his physician was perplexed by the occurrence of paroxysmal atrial fibrillation in a healthy individual. History, physical examination, and x-ray failed to reveal any evidence of heart disease except for episodes of rapid heart action. The electrocardiogram disclosed abnormal ventricular complexes, and the PR interval was 0.10 sec. Since paroxysmal tachycardia has occasionally occurred during a workout in the gym, he was requested to run up and down four flights of stairs in the hope of provoking an attack. The effect of exercise was unexpected; the ventricular complex became normal, and the PR interval increased to 0.16 sec., although the heart rate rose to levels of 120 to 140."

To my knowledge, this is the first recorded example where stress electrocardiography was used to analyze propensity for arrhythmias. As all of you are probably quite well aware the results in this young athlete stimulated a search which resulted in the series of patients initially described by Wolfe, Parkinson, and White.

During the next two decades exercise electrocardiography remained in its infancy. In 1941, Masters published his work with the step test which bears his name. In the three decades following, stress testing through different modalities entered its adolescence with rapid growth. It has gained general acceptance across the country, and



L. C. 62 year old white
female, with inferior
myocardial infarction.

Figure 6.

we are now becoming better prepared to know when to use it, and what to do with the results.

Treadmill or bicycle ergometric stress testing has certain inherent limitations. Most of the technological ones have been minimized. Those limitations relating to the people conducting the test are being worked on. The test does evaluate a person's functional capacity. Function encompasses skeletal, neurological, muscular, as well as cardio-pulmonary. Frequently more information can be derived from watching the patient react to the physical stress, assessing his relative motivation and the level of exercise attainable. Many of us are beginning to wonder if this type of information may be more valuable than some of the electrocardiographic data obtained. Too frequently stress tests are performed without careful attention by a physician to these other parameters. In addition, submaximal exercise testing, which inevitably provides "fuzzier" information than maximal stress testing, is easier to perform, but decreases the sensitivity of the test. In addition, even with maximal testing

under optimal conditions the test yields between 10 and 20% false positive results (less than optimal specificity). The latter is particularly a problem in women. Figure 7 illustrates the electrocardiogram and stress test on a middle age patient who, except for occasional skipped beats, was entirely asymptomatic. Her stress test is abnormal not only on the basis of ST and T wave changes, but on the basis of multiform ventricular extra systoles. Because of a family history of congenital heart defects, and the presence in this patient of a systolic murmur and this abnormal stress test, she was subjected to cardiac catheterization and coronary arteriography. These latter studies were quite normal and the patient has remained asymptomatic. Inasmuch as women tend to have a much higher false positive rate, (decreased specificity) in stress testing, several investigators are now pursuing an explanation for this.

The controversy still rages over stress testing asymptomatic men. False/negative tests will certainly cause some problems. However, a positive

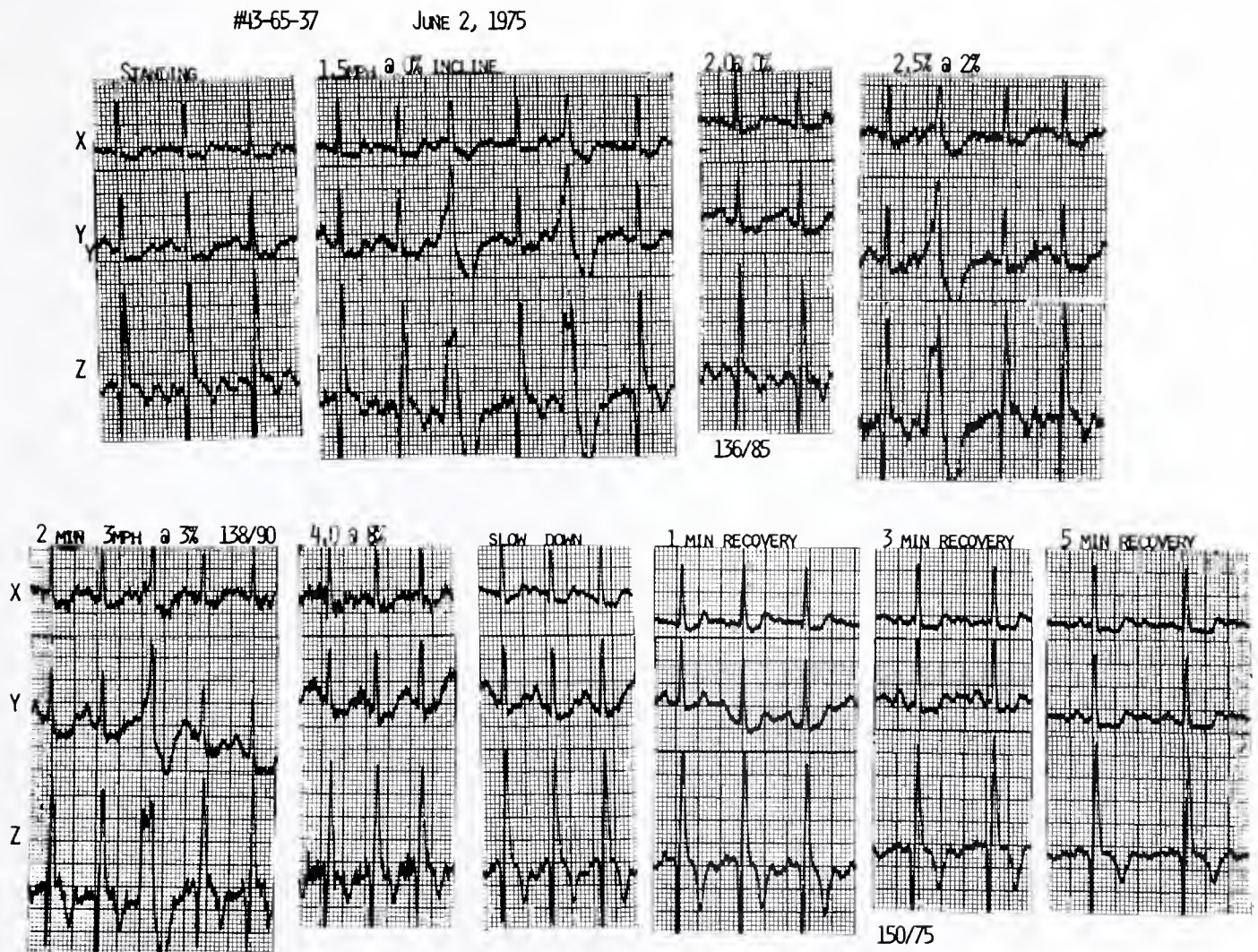


Figure 7.

test in the asymptomatic patient may leave that patient and his physician in a dilemma. Is he one of the 10 to 20% who have a false positive test or does he indeed have significant coronary artery disease? Can the physician with these circumstances resist the temptation to stampede into coronary arteriography? The sheer mathematic logistics of such a stampede are obvious. Given 100 asymptomatic middle age males, 10 to 20 may have a positive test without significant coronary artery disease. Subjecting this fraction of the population to coronary arteriography is neither practical nor wise.

As Dr. White described in his original patient with pre-excitation syndrome, stress can be of value in evaluating patients with arrhythmias. Figure 8 is an electrocardiographic response of a patient who passed out several months previously during neck manipulation for muscular spasms. The reason for his syncope seems obvious. However, in response to stress testing, he showed uncomfortably frequent premature ventricular beats. With some trepidation he was placed on quinidine and his subsequent studies are shown in Figure 9. It appears we were able to suppress his premature ventricular beats, without sufficiently enhancing vago-motor tone to aggravate his propensity for sinus arrest. This subject however, raises a whole wrath of problems comparable to the Medusa head: what do we do with premature ventricular beats? I believe we are only beginning to get a handle on

this question. There are many facets to it, and individualization of therapy is a must. As best we can, we must first determine whether or not those extra beats are a threat to the patient. Then if we find a drug which we can document provides him some protection from those beats, is that protection worth the risks of toxicity from the drug? The use of Holter Scanning may answer the second of those questions, but only time and long range studies of a prospective nature will answer the first and third.

HEMODYNAMICS

360 years ago on April 17, 1616, Sir William Harvey delivered the Lumleian lecture:

"It is plain from the structure of the heart that the blood is passed continuously through the lungs to the aorta as by two clacks of water bellows to raise water. It is shown by application of a ligature that the passage of blood is from the arteries into the veins. Whence it follows that the movement of the blood is constantly in a circle, and is brought about by the beat of the heart. It is a question, therefore, whether this is for the sake of nourishment or of heat, the blood cooled by warming the limbs, being in turn warmed by the heart."

In 1870, Adolf Fick set forth the principle of determining cardiac output by arterial blood gas analysis and oxygen consumption determinations. Oxygen was the marker for his cardiac output determinations. Since that time, many sub-

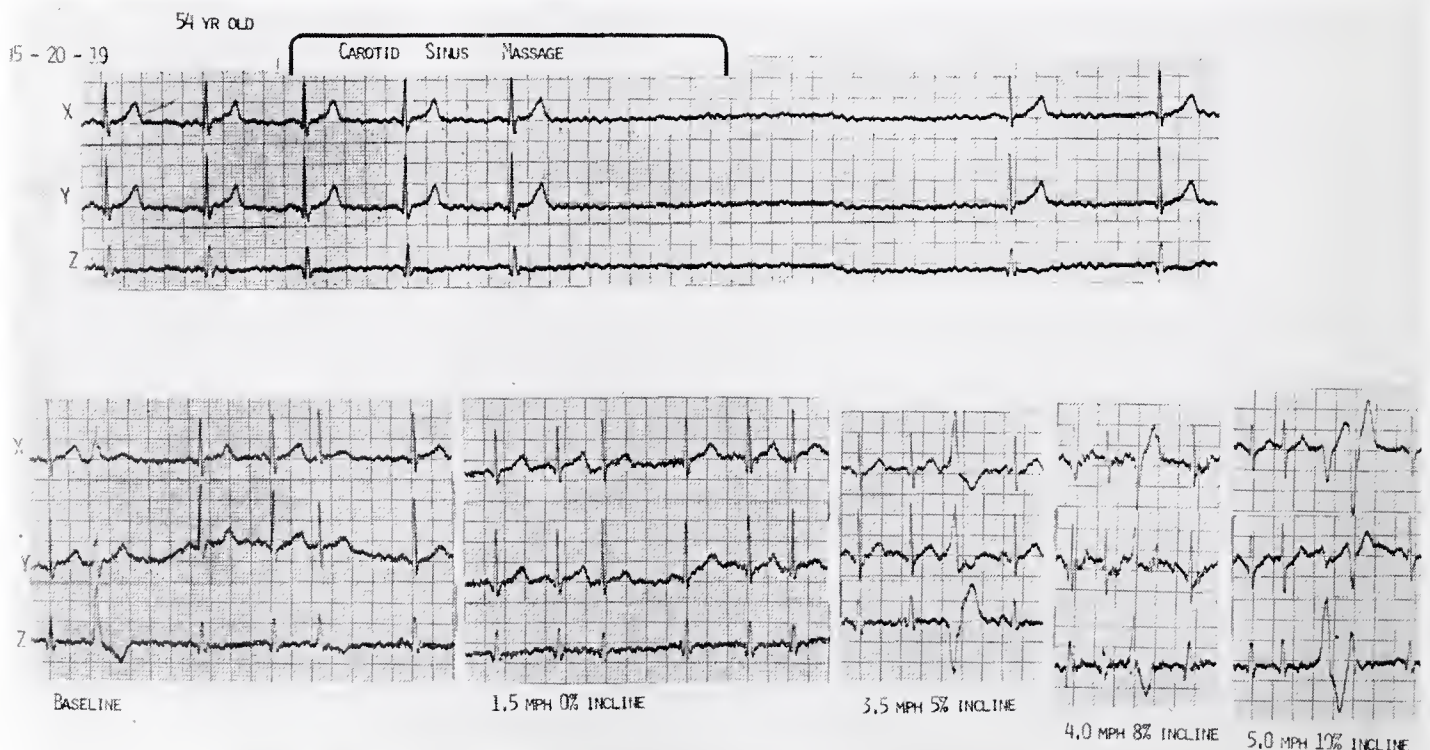


Figure 8.

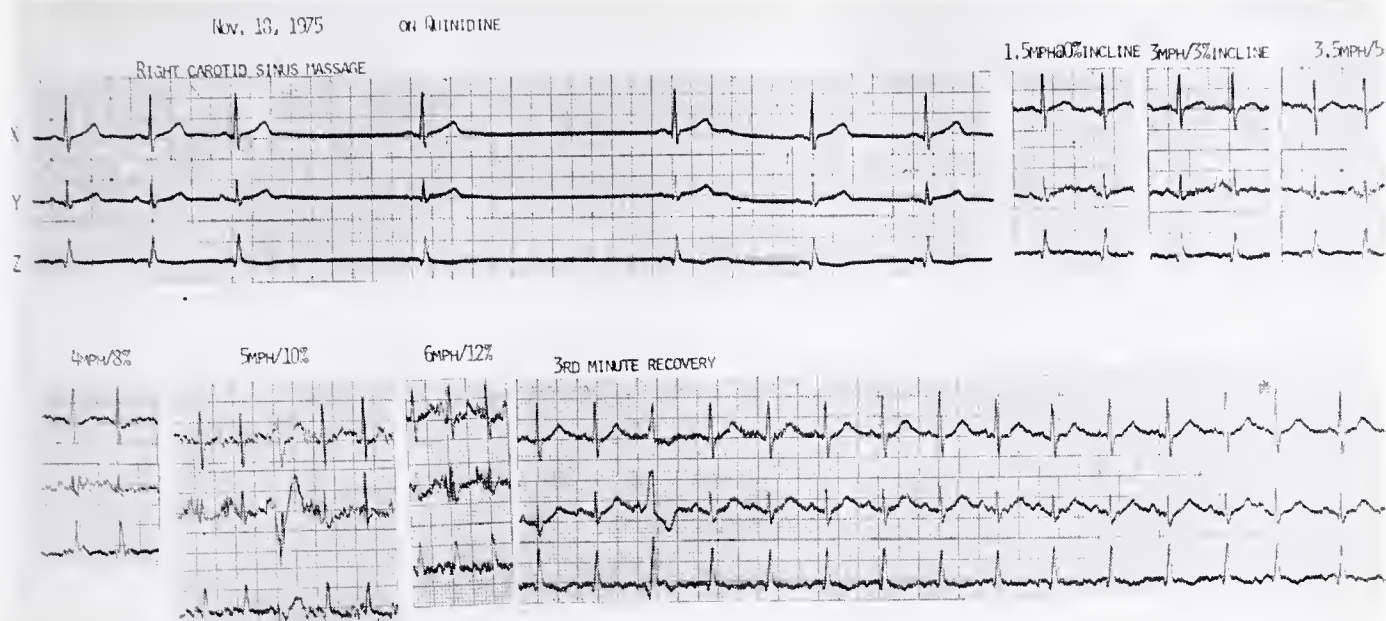


Figure 9.

stances have been used and the most popular one currently is cold. The advent of Swan-Ganz catheter and thermo dilution techniques have made this a relatively simple technique available in most coronary care units. Too many of us have too often been confronted by the patient who is maintaining a satisfactory blood pressure with a mild tachycardia but no urinary output. In such a predicament, we might give more fluids, use vaso-dilator therapy, push potent diuretics, or institute inotropic agents. We know the heart rate, we know the blood pressure, but we don't know if there is any flow. With serial determinations of pulmonary artery wedge pressure and thermo dilution cardiac output, we may obtain a better grasp of which therapeutic modality to follow, as well as monitor the effect of our therapeutic interventions.

ECHOCARDIOGRAPHY

Cardiac ultrasound, introduced into this country a little over a decade ago, has made rapid technical advances and spawned a cardiologic subspecialty all of its own.

Following a history and physical examination, the procedure of choice to confirm or refute at least six possible diagnostic situations, is the echocardiogram. Mitral valve prolapse, idiopathic hypertrophic subaortic stenosis, mitral stenosis, pericardial effusion, left atrial myxomas, and functionally cardiomyopathic hearts produce nearly unique and specific echocardiograms. In addition, echocardiography can provide strong support information in diagnosing congenital bi-

cuspid aortic valvular disease, atrial septal defects, aortic insufficiency, hypokinetic or akinetic interventricular septa, and concentric left ventricular hypertrophy. The future of echocardiography looks bright. In a matter of 2 to 5 years, it will provide a means for assessing total as well as segmental left ventricular function, as well as the actual dimensions of orifice size for the aortic and mitral valves. More complicated congenital heart defects already are being diagnosed with the echo at a high rate of accuracy.

CORONARY ARTERY DISEASE

The conquest of diseases of infectious origin through preventative measures has provided the greatest medical benefit to mankind. If cardiology is to accomplish comparable benefit, it too must take the preventative approach. Unfortunately, no vaccine is currently available that protects one from atherosclerotic cardiovascular disease. This multi-factorial scourge of western civilization will require behavioral modification from the time of fetal conception to adult life. Edward Freis in this month's journal of CIRCULATION reaffirms the necessity for us to de-habituate ourselves and our children from diets highly seasoned with salt. This is a must for families predisposed to hypertension. Similarly from infancy to adulthood, we must learn that the sweetest foods are not necessarily the best. Food products containing high quantities of animal fat must continue to be regarded with suspicion.

Recreation and exercise must become part of

one's way of life, like brushing one's teeth. Each of us has been conditioned to "go out and play" only after he has finished his chores. Recreational play was the reward of one who had his work done. This definition carries over into adult life and instills guilt in all of us daily. Who among us here, has all of his work done? Recreational exercise must provide diversity, a feeling of satisfaction, and must not be a drudgery. Competitive athletics which drill the participant to the point of aversion are extracting a price we should not be willing to pay.

Physicians recommending exercise to their patients, must take the above factors into account. In addition, exercise should be treated as a medication with an appropriate prescription. When is it to be taken during the day? For how long? To what level? And in what sort of environment? Under what conditions should it not be taken — what are its toxic side effects? Several books are now available to the clinician interested in these specifics and should be reviewed by an internist who supervises the care of middle-aged or elderly patients.

VASO-DILATOR THERAPY

Trinitroglycerin, one of the cheapest, most frequently prescribed and potentially effective drugs frequently fails to benefit a patient because of the lack of patient education. The shelf life of this drug is no more than six months. Heat and sunlight accelerate its deterioration. If, when taken, the tablet produces no buzzing or tingling sensation beneath the tongue, it probably has lost its potency. I encourage my patients to keep their stock supply in a brown, glass, well-stoppered bottle in the refrigerator. From this supply, every two weeks they are to restock a similar bottle which they carry in their pocket. If, at the end of two weeks, any tablets are left in their pocket bottle, these are thrown out and a fresh supply obtained.

The so-called "long acting" nitrites probably have no significant therapeutic effect after three hours. If they are swallowed whole, they will have little or no effect at all. Patients must be reminded that these tablets should be chewed and allowed to dissolve in their mouths. Ointments containing nitrites are gaining popularity after nearly two decades of dormancy. They have particular applicability for patients suffering with nocturnal angina. However, they are quite potent, and caution should be maintained in the

surface area prescribed for the use of this medication.

CORONARY ANGIOGRAPHY

Coronary artery anatomy has come a long way since Versalius published his description in 1543. The precise anatomical course, the frequency of variant anatomy, and anomalies, and the radiographic imaging of these strategic vessels dominate the time and energy of more physicians today than were alive in the United States at the time of the American revolution. The dilemma we frequently find ourselves in caring for a patient suffering from mild to moderate angina reminds me of the two brothers, Prometheus and Epimetheus, of Greek mythological note. Prometheus's name stands for forethought or foresight. His concern for mankind, his courageous exploits and defiance of the unjust Zeus are well known to most of us. The name Epimetheus means hind sight. This less thoughtful brother is said to have welcomed Pandora and her ill fated box of plagues and sorrows for mankind from Zeus against the stern warnings of his brother Prometheus. I wish I had the foresight to anticipate a solution to the medical problem so many of us face with our patients today. For example, isolated left main coronary artery disease carries an ominous potential for the patient but the greatest potential for surgical benefit. Two areas of coronary arteriography and coronary artery surgery however give me a Promethian warning for caution. Isolated left main coronary artery disease is present in only 2 to 5% of patients with significant angina pectoris. Significant stenotic lesions in the left main coronary artery are more consistently and uniformly assessed by clinicians reading the coronary arteriograms. A recent report from the Massachusetts General Hospital, however, indicates that among experts, there is a 15 to 20% disagreement on the significance (defined as 50% or greater narrowing in diameter), of a given stenotic lesion in the left main coronary artery. Disagreement was even greater when lesions in the right coronary, left circumflex or left anterior descending coronary arteries were in question. In an effort to compensate and minimize the chance for miscalculating such lesions, we have adopted the policy of having at least three and often four cardiologists review the films of patients being considered for coronary bypass surgery. Hopefully, in this way, we may keep the lid on Pandora's Box.

Management of Emotional Factors in Cardiovascular Disease**

Joseph V. Fisher, M.D.*

INTRODUCTION

The past twenty years have brought mounting evidence that the emotional factors in cardiovascular disease are an integral part of both the assessment and management of patients with these common problems.

Physicians and laymen alike are acquainted with the Type A and Type B behavior described by Friedman and Rosenman and the vulnerability of the Type A behaviorally-oriented person to myocardial infarction.

Other cardiologists have observed that emotional factors can trigger most any type of cardiac arrhythmia;¹ that anxious patients in the pre-operative period will show EKG changes in the S-T segments and T wave alterations;² and Shapiro has shown that there is a high correlation between elevated serum cholesterol levels and chronic emotional tension.³

These data and other evidence which continues to accumulate "clearly indicate that the emotional factors are among primary factors which affect cardiac function."

"Despite this fact, however, it is paradoxical that a formal consideration and addressment to the psychological conflicts and traumata that are regularly found in coronary patients almost never occurs, at least almost never, with the *primary physician*. Perhaps no other aspect of the care of the coronary patient is more neglected."⁴

One might well ask if there is an increasing amount of evidence, and there is, that the emotional factors should be included as one of the risk factors in coronary artery disease and in other cardiovascular diseases (e.g., hypertension), why doesn't this occur? Several cogent reasons for this apparent failure can be advanced: (1) Poor or inadequate training at the undergraduate and graduate levels in the evaluation and management of the emotional factors in most disease states; (2) The time factor — with more pressing priorities in patient care. Cardiogenic shock, pump failure, life-threatening arrhythmias in the

C.C.U. must obviously at times assume paramount importance over the emotional components of total care. However, at some time during the hospitalization, the emotional factors require consideration. (3) "Patients with psychosomatic illness often show — consciously and unconsciously — very little insight or acceptance of the fact that what's occurring in their intrapsychic or inter-personal life can influence their state of physical health."⁵

Purpose

This paper will present a conceptual framework subsumed under the letter "C" which addresses itself to comprehensive and continuing care of the patient with cardiovascular disease. The five "C's" are: (1) Competence; (2) Collaboration; (3) Communication; (4) Compliance; (5) Compassion. These five basics of management will be applied to two commonly encountered cardiovascular conditions: acute myocardial infarction and essential hypertension, and the assessment and management of these diseases will be discussed with due attention to the emotional factors.

An attempt will be made to recognize and to include the presence and influence of the emotional state on these two common cardiovascular conditions. Understanding the place and importance of the emotional factors is no substitute for sound clinical competence. No one wants a professional incompetent no matter how much T.L.C. he provides. But the patient can expect a physician who is sensitive to the day by day vicissitudes of his emotional state while simultaneously demonstrating sound clinical judgment and care. It is not then an "either-or" type of care but rather one which includes both dimensions of management — total care if you will.

THE PRINCIPLES OF MANAGEMENT

I. COMPETENCE

A perusal of the literature about cardiovascular disease fairly overwhelms the interested physician, particularly the primary physician but, perhaps, even for the cardiologist as well.

The determination of the boundaries of com-

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petency does at times place some stress on the physician. In a sense, each practitioner defines the areas and limitations of his competence and responsibility in cardiovascular disease and this determination is influenced by:

(1) His training and experience; (2) The availability of consultants and the prevailing standards of care in the locale of his practice; (3) The specter of malpractice.

More and more, the limits of professional competency are being determined by others — professional review boards and certification and licensure requirements; third party carrier payments; governmental agencies, etc. Restrictive as these factors are, and they seem to multiply yearly, the physician who is motivated by a desire to do only what he knows he is competent to do and who attends to updating his education, has little to fear from this type of surveillance and regulation.

II. COLLABORATION

Collaboration implies that the primary physician accepts the need for assistance in total patient care; is aware of the availability of such help; and can mobilize these resources for the benefit of his patient and for the sharing of the burden of management. Personnel available in the hospital may include the consultants (cardiologist, psychiatrists); chaplain or patients' clergymen; social workers; nursing personnel; pharmacist, etc. Community resources need to be assessed and mobilized in a collaborative manner.

Involving the members of the patient's family and even the patient himself for working together toward recovery is a concept increasingly recognized and accepted.

III. COMMUNICATION

Who communicates what, when, where and how could well constitute a subject for a whole morning's discussion. A few principles can be suggested in relation to communication in the doctor-patient relationship. *Lucidity* — the ability to convey to the patient and his family the diagnosis and prognosis in language free of technical terms (sometimes a refuge for the doctor) and in understandable terms. *Autonomy* — the permission, whenever possible, for the patient to assume the right to make certain decisions and to take the responsibility for his own care commensurate with his ability and understanding.

Humanity — the ability to be sensitive to pain and suffering. (More of this later under Compassion.) *Fidelity* — a keystone in the doctor-patient relationship; trust and reliance that the physician always acts in the patient's best interests and welfare.⁶

IV. COMPLIANCE

Compliance, which is so closely allied to proper communication, passes through several stages. The awareness and understanding of the phase of the patient's cardiovascular disease and the feelings that accompany each of these stages permits the perceptive physician to be flexible and appropriate in his approach to patient care and enhances his chances for patient compliance.

Robert Veatch, a Medical Ethicist, has defined four role models that the physician may demonstrate⁷ in caring for his patients:

The Engineering Model: Quite appropriate at life-threatening, critical periods. The physician is literally an engineer who can regulate and monitor the life-support "hardware;" can intubate, aspirate, catheterize, resuscitate, etc., almost mechanically. "Distancing" allows him to keep his own emotional reactions in the background at this critical period.

The Priestly Model: This, too, is an appropriate type of action by the physician at certain times. It implies that the physician exercises a type of "divine right" to act in the patient's behalf, knows what is best for him and assumes the major responsibility for the patient's management.

The Collegial Model: Physician and patient are co-partners, equal in knowledge and ability to prescribe a regimen for the patient. This concept has a specious appeal but, in actuality, its expectations are too great. Equality and fraternity may be acceptable in revolutionary periods but don't fulfill the requirements for an enduring doctor-patient relationship.

The Contractual Model: In this model, the physician and the patient express their needs and expectations and after discussion and negotiation, a contract is made in which each party promises to do certain things in and for the patient's management. After the acute stage of cardiovascular disease and certainly for long-term care, the contractual model will probably produce the best results.

V. COMPASSION

This quality separates the physician from the doctor. It is the ability to be empathetic — to feel *with* your patient, to be sensitive and aware of his fear, pain, anxiety, anger, depression and to recognize that these profound feelings are an attempt to cope with life-threatening and/or frustrating long-term illness.

These five principles of care for your patient with cardiovascular disease — competence, collaboration, communication, compliance and compassion — constitute a foundation for a program of comprehensive management and each embodies an attention to the emotional factors.

These five basics of management will be applied to two commonly encountered cardiovascular diseases: (1) acute, life-threatening, cardiovascular disease, the acute myocardial infarction; and (2) essential hypertension, the problem of long-term management.

ACUTE, LIFE THREATENING CARDIOVASCULAR DISEASE: MANAGEMENT OF ACUTE MYOCARDIAL INFARCTION

While an acute myocardial infarction is a dramatic and critical event, it is but one phase of coronary artery disease. What occurs before the infarction and what follows the acute life-threatening happening may be of equal importance in both prevention before the actual infarction and after leaving the C.C.U. and during the recovery phase. Both these stages will at one time or another demand the employment of the five "C's" of management in an appropriate manner.

I. THE PRE-CRITICAL PERIOD

The *competent* physician is aware of the risk factors in arteriosclerotic heart disease, including the importance of stress as one of these factors.

Drs. Dlin and Fischer in their research done on victims of myocardial infarction have been able to delineate a time frame of events preceding the final event of the myocardial infarction.⁸

1. *Significant Events* (3 years before) in the life of the individual. Events of importance were those which involved a threat to a "significant other" — parents, spouse or serious illness; or accident to the patient himself. These events, all accompanied by severe emotional stress, forced the patient to call upon adapting and coping mechanisms. However, when these

adapational measures failed, symptoms resulted.

2. *Somatic Symptoms* (1 year prior to the infarction)
 - a. 24% — referable to head, chest and upper extremities ("aches, pains, dizziness that could *not* be related to cardiac disease predominated.")
 - b. 30.5% — symptoms referable to upper GI tract (including peptic ulcer).
 - c. 20% — sexual difficulties (impotence most frequent).
 - d. 25.5% — miscellaneous complaints — fatigue, insomnia.
3. *Psychic Symptoms* (2 months pre-infarction)
 - a. Chiefly significant *emotional* events, e.g., "breaking up an affair," a birthday before retirement; an accident.
 - b. "40% of the psychic symptoms involved phobias, fears, and obsessions in relation to a heart attack."

What can be *communicated* to the patient in the pre-infarction period in the light of this march of events and how can we enlist his *collaboration* to accept a degree of *compliance* that may head off coronary occlusion? Briefly some suggestions are these: (1) Take time to talk with him, to explore his strengths and weaknesses, his fears and anxieties; (2) Probe gently, firmly and incrementally about current, recent and remote stresses (anniversaries, birthdays, deaths of significant others, etc.); (3) Reassure if possible but with all due caution. Despite "negative" findings, the patient's fears have meaning and significance and are not to be discounted!

II. THE CRITICAL PERIOD

Attention to the emotional factors in the first three or four critical days following the infarction can have a profound and lasting impact on the patient. What is communicated to the patient by his physician and by the patient to his physician needs to be analyzed for content and process. Non-verbal communication clues are picked up by the hyperperceptive patient, e.g., facial expressions and other body language when auscultating the heart, reading the EKG, watching the blips on the monitor may form the seedbed for iatrogenic disease which can be more difficult to manage than the physical sequelae of the infarction. Dealing with "disturbing" be-

havior, denial and defiance, a psychotic break or an acute brain syndrome can be prevented or at least alleviated by discussing with the patient his feelings of fear, his counterphobic behavior and his dependency strivings, etc. The patient must be encouraged to acknowledge his loss or losses (and these need to be explored) and to begin to grieve about them; to move beyond shock, anger, denial, to mourning and finally to restitution. Attention to these dimensions of care speak of compassion and engender confidence. Specific principles which indicate "deftness and intensity of care" include: frequency of visits; availability; proffering of explicit directions; alleviation of pain, anxiety and insomnia (common in the CCU) without over-sedation. Realistic reassurance with generous, repeated and appropriate explanations.⁹

III. THE POST-CRITICAL PERIOD

This period begins after the first 72-96 critical hours have passed and extends until restitution and a new homeostasis have occurred. Now comes the time for anticipating and inviting questions and providing answers; of giving explicit directions; of not avoiding potentially sensitive areas (e.g., resumption of sexual intercourse); of continuing to honestly reassure and offering positive support. Dr. Thomas Hackett offers these hints for the physician who cares for the myocardial infarction patient:

- "1. Explain that depression and anxiety are almost universal in post myocardial-infarction experiences.
2. Prescribe *mild* hypnotics and tranquilizers for the first month at home. Present their use as necessary to health, not signs of weakness.
3. Discuss common misconceptions, whether the patient mentions them or not. Always ask for his perception of "heart attack" or "coronary."
4. Clearly explain what his sex life can be immediately and in the future.
5. List, then write out proper diet advice.
6. Describe degree of physical activity allowable immediately and in the future.
7. Work out a careful and specific exercise plan.
8. Meet with the spouse and family of the patient to allay their anxieties, prepare them

to deal with depression and avoid overprotection."¹⁰

These basic directions can be done by the primary physician if he has the time and skill or by a nurse clinician if he does not. A home visit is often helpful in ongoing management and in the understanding of problems which occur following discharge.

Findings of a team of nurse investigators at the College of Nursing of the University of Arizona who questioned the wives of twenty myocardial patients are quite revealing. Suppression of anger replaced expression of it and as a result many of the wives showed the psychophysiologic indications of anxiety. The majority of wives of these S/P myocardial infarction patients stated that family and friends provided more help than the health professionals. "The women questioned did, however, appreciate whatever information and advice the health professionals offered." This is both an indictment and a challenge!¹¹

The "crisis of re-entry," the return home for the patient and his family is indeed a period of major transition which can be managed by an informed and involved team approach. Certainly in addition to the health care team members it must involve the patient as an active participant and his family also. The patient's primary physician orchestrates the management plan and he leads all who are involved in the action to play their part well. The desired outcome of this team work is a unified, coordinated and harmonious effort for the benefit of his patient and his family.

CHRONIC CARDIOVASCULAR DISEASE: ESSENTIAL HYPERTENSION

Millions of dollars have been spent in the past ten years to provide mass screening to detect asymptomatic hypertension. The general public has been made aware of the risk factors which are involved in coronary artery disease, one of which is hypertension. Public education about risk factors and mass screening measures for detection are laudable but are also expensive. What about the payoff, i.e., has the dissemination of this health hazard information made any appreciable impact on lessening the incidence of hypertension and/or myocardial infarction? Preventive medicine is costly, time-consuming and in the majority of cases wins few converts of

lasting conviction and concerted action. The reasons for this obvious hiatus between providing information and following this by an intelligent plan of action are manifold and involve social, cultural and even ethical issues and are beyond the purview of this paper.

However, some of the difficulties encountered in the closing of the gap between mass screening detection, the dissemination of the findings from such surveys and formulating a plan of management and finally a long-term commitment to this regimen are in a large part psychological. Physicians, both individually and as a group, aren't always enthusiastic about preventive medicine. Our training has been disease-model-oriented; our practice by necessity is directed to the sick people who come to us for care; our experiences, even when time permits, in the area of prevention (except for the accepted value of pediatric care and immunizations) have often been frustrating and unrewarding. Have any of you met with great success in treating obesity, excessive smoking, alcohol abuse, etc.? Perhaps we need to examine our attitudes, search for better methods of patient education and define the limits of our responsibility in patient care.

Excuse this digression. Let us focus on the emotional factors which are involved in a prototypic long-term cardiovascular disease, that of essential hypertension.

This schema represents a hypothetical model for understanding the genesis and development of hypertension. It is based on the pioneer work done by Franz Alexander, Edward Weiss and others in the years 1930-1960.¹²

This schema is hypothetical to some extent.

BASIC PERSON- ALITY PROFILE	FEELINGS AND BEHAVIOR UNCONSCIOUS	CONSCIOUS	+ MAJOR LIFE STRESS	= CLINICAL HYPERTENSION
1. <i>Insecurity</i> based on threat of separation from parent	<i>Repressed feelings —</i> 1. Anger	Apparent compli- ance; friendly self-control	Including Anniversary reactions	<i>Stages:</i> 1. Asymptomatic 2. Symptomatic a. Early target organ involvement b. Target organ damage
2. Pathological dependency	2. Aggressive drives <i>Pathological dependency</i> based on fear			

It acknowledges that essential hypertension is a multi-factorial disease which encompasses genetic, metabolic, cultural, and ethnic factors, in addition to the emotional factor. It accepts the fact that not all people who suffer a major threat or actual separation early in life and who necessarily repress their anger about this loss develop hypertension. However, an understanding of the underlying emotions in the hypertensive patient may assist the physician to deal with repressed anger and what he may interpret as the non-compliant patient. A positive transference relationship can be developed with time and effort. Anger can be acknowledged and be channeled in a socially acceptable fashion.

The application of some of the "C's" to these emotional factors in hypertension is now in order.

I. COMMUNICATION

What do you tell the patient with hypertension previously undetected? (He's mad!)

- A. Explain to the patient at the level of his understanding the meaning of hypertension, but don't assume he knows anything!
 1. Take time: an unhurried, uninterrupted period; this is the "critical moment" which can shape the future and course of management. Your attitude and concern can give the message that this is a serious matter.
- B. Allow the patient to ask questions. Better yet, encourage him to do so. Ask for his perception of the term hypertension. You may be surprised at some of the replies, e.g., "Look, Doc, I don't see why I've got hypertension: I'm a pretty calm guy."

C. Emphasize how lucky he is today, because the disease can be controlled with medications and a collaborative approach. The older clinician can remember when his therapeutic armamentarium for treating hypertension consisted of sedation and such useless and odiferous drugs as garlic pills.

D. Spell out the contract: Specific directions:

1. Drugs
2. Life style, diet, exercise, rest and decreased stress, etc.

E. Repeat and repeat the directions as you continue to see the patient; get feedback from the patient on each visit. Be sure he understands the program.

II. COLLABORATION

A. Delegate to trusted and informed members of the health care team the task of patient education: nurse practitioner, Medex, VNA, health educators, pharmacist.

B. Group instruction and group approach may be indicated with the use of good audiovisual aids.

C. Use printed materials; good ones which you have read yourself and approve of.

E.g.,

1. "Your Blood Pressure: The Most Deadly High," (Medcom Press 1974).
2. "How You Can Help Your Doctor Control Your Blood Pressure," Marion Moser, M.D., (available through your local Heart Association).
3. "The Silent Disease: Hypertension," (Crown Publishers 1973).¹³

D. Involve the patient/family as part of the team:

1. This involves autonomy — taking responsibility for his own care as much as he's able to assume:
 - a. E.g., taking blood pressure at home.
 - b. Proper dietary measures by patient and spouse.

E. You may want to prescribe relaxation techniques, T.M., or Behavioral Modification to assist your patient to achieve an altered life style to minimize stress.

III. COMPLIANCE

A. Compliance is a bilateral and mutual relationship. Doctors as well as patients can be "non-compliant," but we don't often admit this fact.

B. Look again at the psychodynamic profile of the hypertensive patient and include this understanding as you seek to establish a life-time commitment to a program which has a reasonable expectation for acceptance.

C. *Rx* — A doctor-patient relationship which is *contractural* and which incorporates the ingredients of lucidity, fidelity, humanity and autonomy.

1. *Fidelity* — this means you will not reject or abandon him. Remember the doctor-patient relationship will undoubtedly rekindle, at the unconscious level, an earlier parent-child relationship.

2. *Humanity* — be aware of fear and anxiety and denial and rebellion which are coping mechanisms of your patient. Don't pass judgment on these behaviors but rather seek to understand them.

3. *Autonomy* — "Specific Methods to Insure Compliance."¹⁴

- a. Let the patient know what to expect and what you expect him to do and what you will do.

4. *Lucidity*

- a. Emphasize the positive features of the program, not the restrictive ones.

- b. Clear up his misconceptions and alleviate his fears.

- c. Arrange for adequate follow-up to prevent dropping out of therapy.

- d. Be simple in your approach and introduce behavioral changes gradually.

- e. Let the patient do some of the talking.

- f. Reinforce the program with verbal and mechanical aids.

SUMMARY

Perhaps the biggest deterrent to successful life-time management of the hypertensive patient is that of compliance. A contract with your patient which makes him an informed collaborator, who is involved in his own care, and who assumes a share of the responsibility for this care may provide a more optimistic hope of success.

The purpose of this paper has been to bring an awareness of the importance of the emotional factors as one of the important components in the management of cardiovascular disease. Myocardial infarction, an acute life-threatening illness and essential hypertension, a long-term car-

diovascular disease, were selected for examination and for the application of the fundamentals of management: (1) Competence; (2) Collaboration; (3) Communication; (4) Compliance; (5) Compassion. A plea is made for the provision of care which acknowledges that the patient's emotional and psychological state profoundly influence his response to his illness and incorporates his knowledge into a comprehensive management plan.

BIBLIOGRAPHY

1. Katz, L. W., "Psychosomatic Aspects of Cardiac Arrhythmias: A Psychological Dynamic Approach." *Annals of Internal Medicine* 77:261. 1947.
2. Mainzer, F., Krause, M. N., "Influence of Fear on the EKG." *British Heart Journal* 2:221. 1940.
3. Shapiro, A. P., "Psychophysiological Aspects of Cardiac Disease." *Annals of Internal Medicine* 53:64. 1960.
4. Wahl, C. W., "Psychological Management of the Coro-

nary Patient." Chapter 44 from "Myocardial Infarction" by Corday, E., and Swan, H. J. C.

5. *Ibid.*
6. Fries, "Human Experimentation."
7. Veatch, R., "Models of Ethical Medicine in a Revolutionary Age."
8. Fischer, H. and B. Dlin, et al., "Emotional Factors in Coronary Occlusion." *Psychosomatics*, Volume V, Pages 280-291. 1964.
9. Wahl, C. W., "Psychological Management of the Coronary Patient." Chapter 44 from "Myocardial Infarction" by Corday, E., and Swan, H. J. C., Page 324.
10. Hackett, T., "Psychological Hazards of Convalescence." *Primary Cardiology*, January 1976, Page 12.
11. *Family Medicine Report*, Volume II, No. 1, January 1976.
12. Fischer, H., "Hypertension and the Psyche." *Hypertension, Recent Advances*, edited by Brest, A., and Moyer, J. 1961, Lea Fibeger, Philadelphia, 1961.
13. *Practical Psychology for Physicians*, Page 43, January 1975.
14. *Ibid.*, Page 46.



Sterilization by Laparoscopic Tubal Electrocoagulation

A Report of 1000 Private Patients*

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INTRODUCTION

The rebirth of laparoscopy (transabdominal peritoneoscopy) in the fifth decade of this century has given the gynecologist a significant technic for performing therapeutic and diagnostic operative procedures. The lesser cost of hospitalization, reduced risk of operative morbidity and shortened recovery time as compared to pelvic celiotomy produce obvious advantages. When selecting a sterilization procedure, it is important to bear in mind that no single method is ideal for every patient. However, the popularity of laparoscopic sterilization has mushroomed in the past six years to the point of becoming the largest single method of tubal sterilization employed in North America.¹ The purpose of this report is to review our experience with this procedure in 1000 private patients.

MATERIALS AND METHODS

Our six man private gynecologic group began performing laparoscopy in March 1972. Our experience in using laparoscopy for the diagnosis and evaluation of gynecologic problems has previously been reported.² The first 1000 consecutive cases in which we used the laparoscope for sterilization via tubal electrocoagulation were studied. The time span covered the 50 months beginning in March 1972.

All 1000 cases were done under general anesthesia, usually with endotracheal intubation, depending on the preference of the anesthesiologist. The age varied from 17-50 years with a median of 31 years. The average number of living children per patient at the time of surgery was two. Obesity was not a contraindication. Nineteen patients weighed over 200 pounds. The average patient weighed 137 pounds.

Eighty-five percent of the cases were done as outpatients. Having had nothing by mouth since the previous midnight, they arrived at the special

outpatient unit of our hospital early in the morning and were discharged the same afternoon.

The most frequently used contraceptive up to the time of surgery was the birth control pill, so used by 413 patients (41.3%). Most of the sterilizations were voluntary (95.7%). Forty-three (4.3%) were medically indicated for reasons ranging from diabetes mellitus to mental retardation.

One hundred sixty-five patients (16.5%) had had previous abdominal surgery, 133 having had one, 29 having had two, and three patients having had three previous abdominal procedures. The most common previous procedure was appendectomy (99 patients) and the second most common was cesarean section (38 patients).

The surgical technic for performing the laparoscopy was the standard two-incision technic described by Steptoe.³ Each fallopian tube was occluded by electrocoagulation and then totally transected at the site of electrocoagulation. One hundred sixteen patients had their intrauterine contraceptive device removed at the time of tubal sterilization. One hundred seven patients had a dilatation and curettage under the same anesthesia.

RESULTS

During the followup period ranging from 5-57 months, no failures in technic were encountered. There were two cases of luteal phase pregnancies in which the patient was pregnant at the time of the sterilization procedure. Their absence later in the series was the result of more careful pre-operative screening of the patients for pregnancy and of ensuring that the patients were using an effective method of contraception while waiting for the operation.

There were 30 significant complications, four of which required celiotomy. The most common complication was mesosalpingeal bleeding which occurred in 17 patients. It was controlled by further coagulation in 16, but one required celiotomy to control the hemorrhage. Uterine perforation occurred in nine patients secondary to the instrument employed to manipulate the

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uterus, requiring celiotomy to control bleeding from the perforation site in one patient.

The Veress needle was inserted into the stomach of two patients. In each case the small hole in the stomach was confirmed by laparoscopic visualization. Both were managed conservatively by observation and withholding food and fluid for 12 hours. One had gastric drainage by nasogastric tube during this same time. Both were discharged 24 hours after surgery.

One patient required celiotomy because of traumatic transverse colon injury occurring at the time of insertion of the laparoscope trocar. No resection was necessary and simple repair of the defect made by the trocar resulted in a benign postoperative course. She was discharged four days later.

One patient was admitted to the hospital three days after laparoscopy with acute onset of fever, leukocytosis, vomiting, lower abdominal pain, and the findings of obvious pelvic peritonitis. Immediate celiotomy revealed a perforation of the sigmoid colon with suppurative peritonitis. She was treated by exteriorizing the injured portion with subsequent repair in 90 days.

In two patients, celiotomy was required to complete the tubal sterilization because inability to establish a pneumoperitoneum. This was considered a failure in the method rather than a direct complication of the technic.

DISCUSSION

General anesthesia is the most frequently utilized type of anesthesia for laparoscopy, with endotracheal being favored in most reports.^{4,5} However, many do not feel intubation is an absolute necessity.^{6,7} We have left this decision to the individual anesthesiologist. Although there are avid proponents of local anesthesia,^{8,9} we have never employed it.

Obesity is always a factor during any surgical procedure. It is especially troublesome during laparoscopy since the instruments used are of a limited length and estimation of their intra-abdominal position is difficult.¹⁰ Obesity was present in both of our patients in which the pneumoperitoneum could not be established and in whom celiotomy was required to perform tubal sterilization. However, as our experience has increased, obesity has become less of a problem. Recently we performed successful laparoscopy in a 348-pound patient (not included in this series).

Most of the patients early in this series were admitted to the hospital. However, the trend has now reversed and most patients are treated as outpatients. We have found from the standpoint of patient convenience, safety, and economy the outpatient concept is far superior. Others have also found this to be true.^{11,12}

The frequency of previous abdominal surgery in laparoscopic patients varies between 11.6% and 33.2% in various studies.^{5,13} In the 16.5% of our patients in this category, we have not found this to be a problem. Sometimes we do employ the "syringe" test as a precautionary measure in patients with an abdominal incision scar to aid in avoiding traumatic injury to a portion of intestine which might be adhered to the anterior abdominal wall. This type of bowel injury has been reported.^{5,14}

The occurrence of acute salpingitis and even pelvic abscesses unrelated to bowel injury has been reported in a few patients who underwent laparoscopic tubal cauterization accompanied by removal of an intrauterine contraceptive device (IUCD) and uterine curettage.¹⁵ Although 11.6% of our patients had their IUCD removed at the time of tubal surgery, no case of salpingitis was noted.

The absence of a sterilization failure in our series compares favorably with other reported series. Table I lists a few of the many reports using this technic.¹⁶ The overall failure rate in 188,390 cases using this technic from 1971-1975 was 0.25% (2.5 cases per 1000).¹⁷ This is lower than all other types of tubal sterilization procedures (Table II), and as low as any procedure available except hysterectomy.

The complication rate with this procedure varies from 0-8% in reported series.¹⁶ Our 3.0% falls within this range. Four patients (0.40%) required celiotomy as a direct result of these com-

TABLE I. FAILURE RATES IN A FEW REPORTED SERIES			
Series	No. of Patients	Failures	Percentage
Corson	685	1	0.1%
Courey	1243	0	0%
Davidson	801	7	1%
Edgerton	2018	3	0.2%
Jordan	910	1	0.1%
Stephoe	1503	2	0.6%
Wheless	3600	12	0.3%
Present Study	1000	0	0%

TABLE II. FAILURE RATES WITH DIFFERENT METHODS OF TUBAL STERILIZATION

Type of Tubal Sterilization	No. of Cases	Failure Rate
All Types (abdominal or vaginal)	29,496	0.71% ¹⁸
Pomeroy Alone	35,000	0.50% ¹⁹
Laparoscopic Electrocoagulation	188,390	0.25% ¹⁷

plications. In a review of the literature Farooqui found that 0.66% of patients having this surgery received complications requiring celiotomy.²⁰

One of the most common complications reported in the literature is mesosalpingeal bleeding.^{5,16,20} Our incidence of 1.7% was higher than the average of 0.64% reported in a review of published cases.^{5,20} This complication is usually caused by insufficient fulguration of the tube before division, tearing of the mesosalpinx, or avulsion of the tube. Celiotomy was used only once, and that early in the series, because we learned soon that hemostasis by recoagulation could be accomplished through the laparoscope. This was also true in the nine patients who had uterine perforation by the instrument used to manipulate the uterus. Celiotomy was necessary in one case early in the series but has not been required since.

The overall incidence of complications secondary to penetration of the abdomen by the Veress needle or the trocar is 2.7 per 1,000 cases.⁵ We had three cases in our series, two in which the stomach was perforated by the needle and one in which the transverse colon was perforated by the trocar. Gaseous distention of the stomach is the most common cause of gastric perforation.²¹ This occurs when the stomach contains enough air or anesthetic gases to bring it within range of the needle insertion site. Neither of our cases was intubated, a procedure which some advocate in order to preclude stomach distention.²¹ However, it can occur during the pre-oxygenation phase even when intubation is used. If there is any suspicion of gastric distention, a nasogastric tube should be used prior to needle insertion.

When gastric perforation by the needle is suspected, the stomach should be decompressed immediately with a nasogastric tube. One then may reinsert the needle and proceed with laparoscopy in the usual fashion. It is important to visualize the site of perforation and assess the degree of

damage and bleeding. In the absence of bleeding a conservative course is indicated, consisting of gastric drainage for 24-48 hours, withholding of food and fluids, and close observation.^{3,21,22}

Perforation of the gastrointestinal tract at the time of introducing the trocar has been reported by others.^{14,23,24} It usually occurs if the bowel is densely adhered to a previous celiotomy scar or if the bowel is distended. Neither was the case in our patient. The injury hopefully is recognized immediately and repaired under the same anesthesia, as was done in our case.

Electrical injury to the bowel with subsequent necrosis and perforation is another complication of this procedure. Thompson at Johns Hopkins reported 10 cases in 3600 laparoscopic tubal sterilizations.¹⁴ Soderstrom reported two in 493 cases.²⁵ Each year the overall rate for this complication gets lower as reported by the American Association of Gynecological Laparoscopists.¹⁷ Our one case occurred 49 months ago.

Characteristically, electrical injuries to bowel are unrecognized at the time of occurrence and are not apparent until several days after the injury.⁵ The majority appear three to seven days later. The clinical picture at that time is one of acute pelvic infection with fever and leukocytosis, and abrupt onset of pain. Immediate exploration with exteriorization if the large bowel is involved, or repair of small bowel, is mandatory.

It has been observed that the complication rate drops as physician experience with the procedure increases.¹⁷ We have found this to be true in our experience. We have had no major complications requiring celiotomy in the last 42 consecutive months using this technic.

SUMMARY

A review of our first 1000 cases of tubal sterilization via laparoscopic electrocoagulation has shown this procedure to be extremely effective. There have been no pregnancies subsequent to the sterilization. It has considerably shortened the hospital stay, lowered the cost for the patient and decreased the operative morbidity and recovery period as compared to conventional tubal ligation via celiotomy. It has provided a technic which leaves an unnoticeable scar. The complications seen earlier in our experience have not continued, and indeed, have virtually disappeared. Based on this experience, it is easy to

understand why laparoscopy is now the most popular single method of tubal sterilization in our country.

BIBLIOGRAPHY

1. Yuzpe, A. Y.: Choosing a Sterilization Procedure: Laparoscopic Tubal Sterilization. *J Reprod Med* 15: 119-122, 1975.
2. Smith, D. B., Kelsey, J. F., Sherman, R. L., et al.: The Laparoscope in gynecologic diagnosis and evaluation. *J Arkansas Med Soc* 73:235-239, 1976.
3. Steptoe, P. C.: *Laparoscopy in Gynecology*, London, ETS Livingston, Ltd, 1967, pp. 72-75.
4. Keith, L., Silver, A., Becker, M.: Anesthesia for laparoscopy. *J Reprod Med* 12:227-233, 1974.
5. Loffer, F. D., Pent, D.: Indications, contraindications, and complications of laparoscopy. *Obstet Gynecol Surv* 30:407-427, 1975.
6. Edgerton, W. D.: Laparoscopy in the community hospital: set-up, performance, control. *J Reprod Med* 12: 239-244, 1974.
7. Peterson, E. P.: Anesthesia for laparoscopy. *Fertil Steril* 22:695-698, 1971.
8. Wheeless, C. R.: Anesthesia for diagnostic and operative laparoscopy. *Fertil Steril* 22:690-694, 1971.
9. Thompson, R. J., Mojadidi, Q., Beadling, L.: Laparoscopy sterilization under local anesthesia. *Obstet Gynecol* 39:635, 1972.
10. Loffer, F. D., Pent, D.: Laparoscopy in the obese patient. *Am J Obstet Gynecol* 125:104-107, 1976.
11. Pent, D., Loffer, F. D.: Laparoscopy at the Surgicenter. *J Reprod Med* 10:239-242, 1973.
12. Fishburne, H., Fulghum, M. S., Hulka, J. F., et al.: General anesthesia for outpatient laparoscopy with an objective measure of recovery. *Anesth Analg* 53: 1-6, 1974.
13. Kleppinger, R. K.: One thousand laparoscopies at a community hospital. *J Reprod Med* 13:13-20, 1974.
14. Thompson, B. H., Wheeless, C. R.: Gastrointestinal complications of laparoscopy sterilization. *Obstet Gynecol* 41:669-676, 1973.
15. Badia, P. L., Young, J. R., Laros, R. K., et al.: Suppurative salpingitis after laparoscopic tubal canterization. *Obstet Gynecol* 42:511-515, 1973.
16. Shepard, M. K.: Female contraceptive sterilization. *Obstet Gynecol Surv* 29:739-787, 1974.
17. Phillips, J., Keith, D., Hulka, J., et al.: Gynecologic laparoscopy in 1975. *J Reprod Med* 16:105-117, 1976.
18. Garb, A. E.: A review of tubal sterilization failures. *Obstet Gynecol Surv* 12:291-305, 1957.
19. Thomas, W. L.: Preveception: panhysterectomy versus tubectomy. *Southern Med J* 46:787, 1953.
20. Farooqui, M. O., Bazzoli, J. M.: Complications associated with laparoscopic tubal sterilization. *Contemp Obstet Gynecol* 5:57-61, 1975.
21. Endler, G. C., Daba, F., Moghissi, K. S.: Gastric perforation during pelvic laparoscopy. *Obstet Gynecol* 47:40s-42s, 1976.
22. Reynolds, R. C., Pauca, A. L.: Gastric perforation, an anesthesia-induced hazard in laparoscopy. *Anesthesiol* 38:84-85, 1973.
23. Jordan, J. A., Edwards, R. L., Pearson, J., et al.: Laparoscopic sterilization and follow-up hysterosalpingogram. *J Obstet Gynaec BR Commonw* 78:460-466, 1971.
24. Black, W. P.: Sterilization by laparoscopic tubal electrocoagulation: An assessment. *Am J Obstet Gynecol* 111:979-983, 1971.
25. Soderstrom, R. M., and Butler, J. C.: A critical evaluation of complications in laparoscopy. *J Reprod Med* 10:245, 1973.





Office Orthopaedics

Adult Elbow Injuries

H. Austin Grimes, M.D.*

The elbow is the most complicated, major joint of the body, both structurally and functionally. When the elbow is injured, it is often disabling, by virtue of pain and swelling disproportionately to the deformity.

Many more injuries are listed in a complete classification of elbow injuries, but only the more common ones will be considered in this article.

Accurate diagnosis requires two or more X-ray views, and they should be of quality, otherwise, misdiagnosis will compromise proper treatment and rehabilitation of the elbow.

Treatment should be instituted promptly and in the case of dislocations, should be treated as true emergencies. Other closed fractures may become emergencies if vascular compromise or marked swelling occur as Volkmann's ischemic contracture can occur in the adult the same as with children. Usually the adult will demand more attention to his complaints than the child and is less apt to allow the arm to become ischemic. The exception is in the severely injured adult with impaired sensorium, and circulation must be closely observed by the treating physician.

The elbow can function in a limited range of motion (sixty degrees) provided it allows the hand to reach the mouth or head and the perineum, if not, then no matter how accurate the reduction, rehabilitation has failed. The normal range of motion of flexion of the elbow is from thirty degrees to one hundred eighty degrees which is considered full extension. Sixty to one hundred twenty degrees can be functional range

of flexion-extension with active pronation and supination range of sixty degrees provided the neutral position is in the center of the range. (See Figure 1 and Figure 2.) Shoulder motion augments pronation and supination and allows more versatility to the limited functional range of motion of the elbow. In the fracture which is inevitably going to ankylose, it should be placed in one hundred sixty degrees of extension or flexed twenty degrees from the full extended position and thirty degrees of pronation.

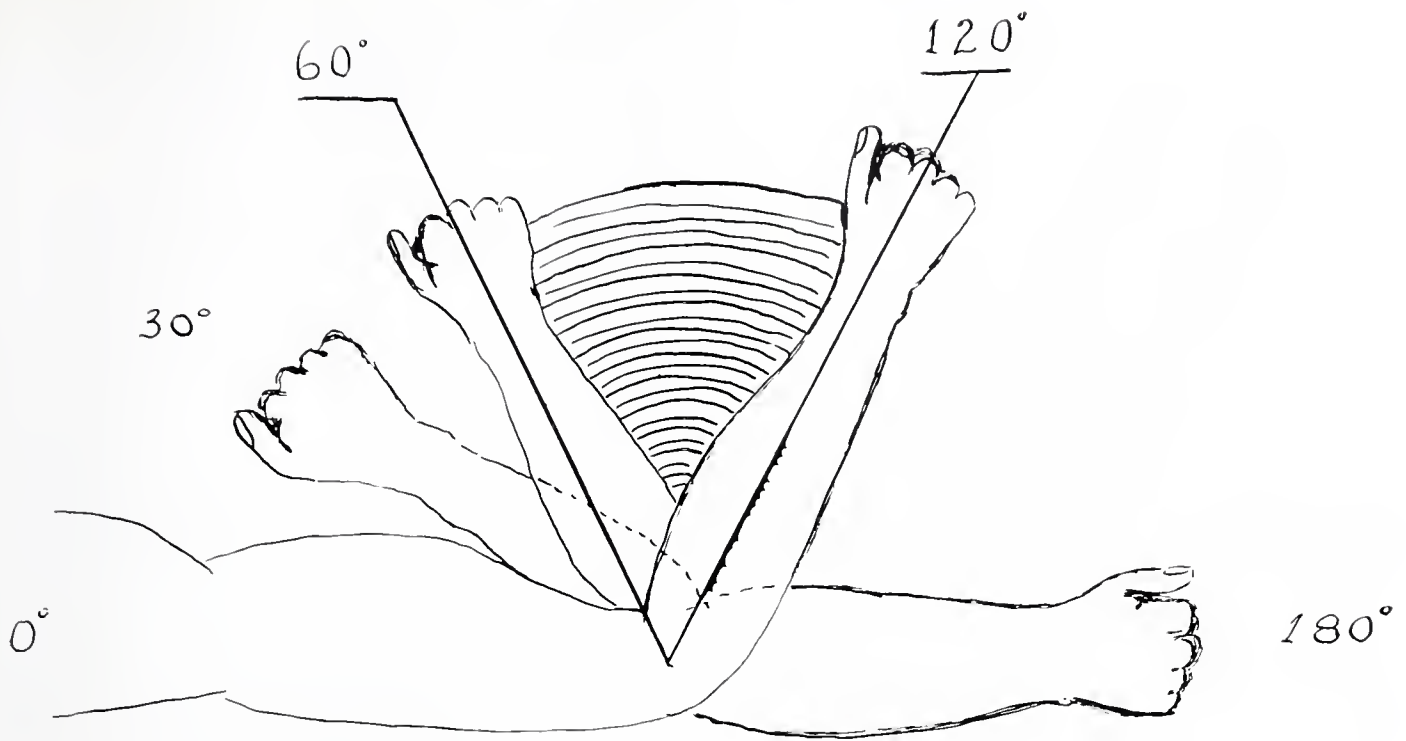
Fractures do occur with some dislocations, such as the Monteggia's fracture (Figure 3), which is by definition a dislocation of the radial head with fracture of the ulnar shaft. In the adult Monteggia's fracture, it is usually treated with open reduction, rigid fixation of the ulna, and repair of the orbicular ligament about the radial neck. Occasionally, substitution with a fascial graft is required to re-construct the orbicular ligament.

Dislocation of the elbow (Figure 5) is usually classified as posterior or anterior. Remember that the distal part is described in relation to its proximal member when describing anterior-posterior displacement or varus and valgus angulations.

Do not neglect obtaining X-rays in this injury even if it is a recurring event. Prompt reduction, either with intravenous Valium and suitable narcotic, analgesic or general anesthetic is often required.

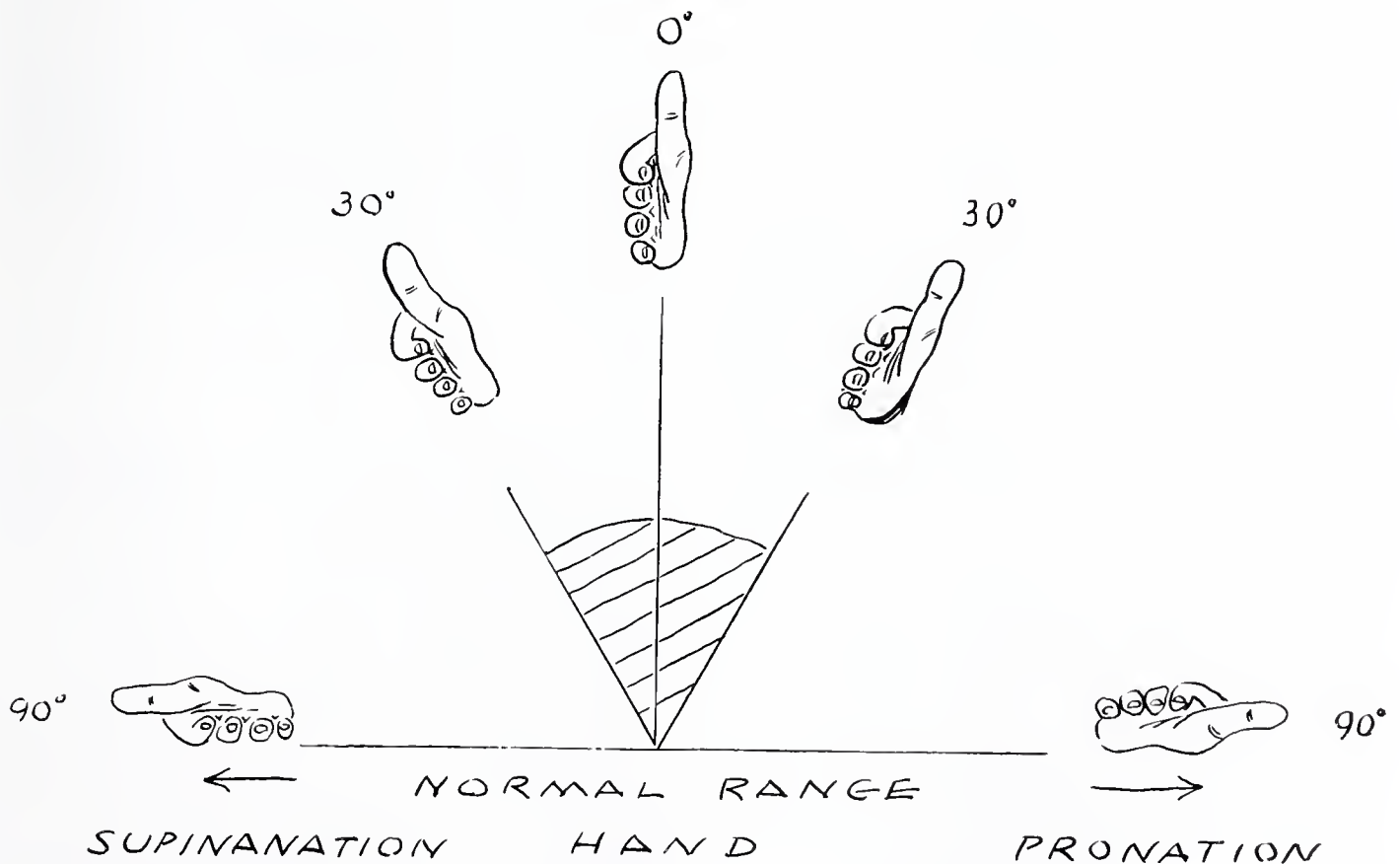
The reduction is accomplished by pressing with the thumbs over the olecranon and extending the forearm. Usually, this reduces easily and can be checked by passive range of motion clini-

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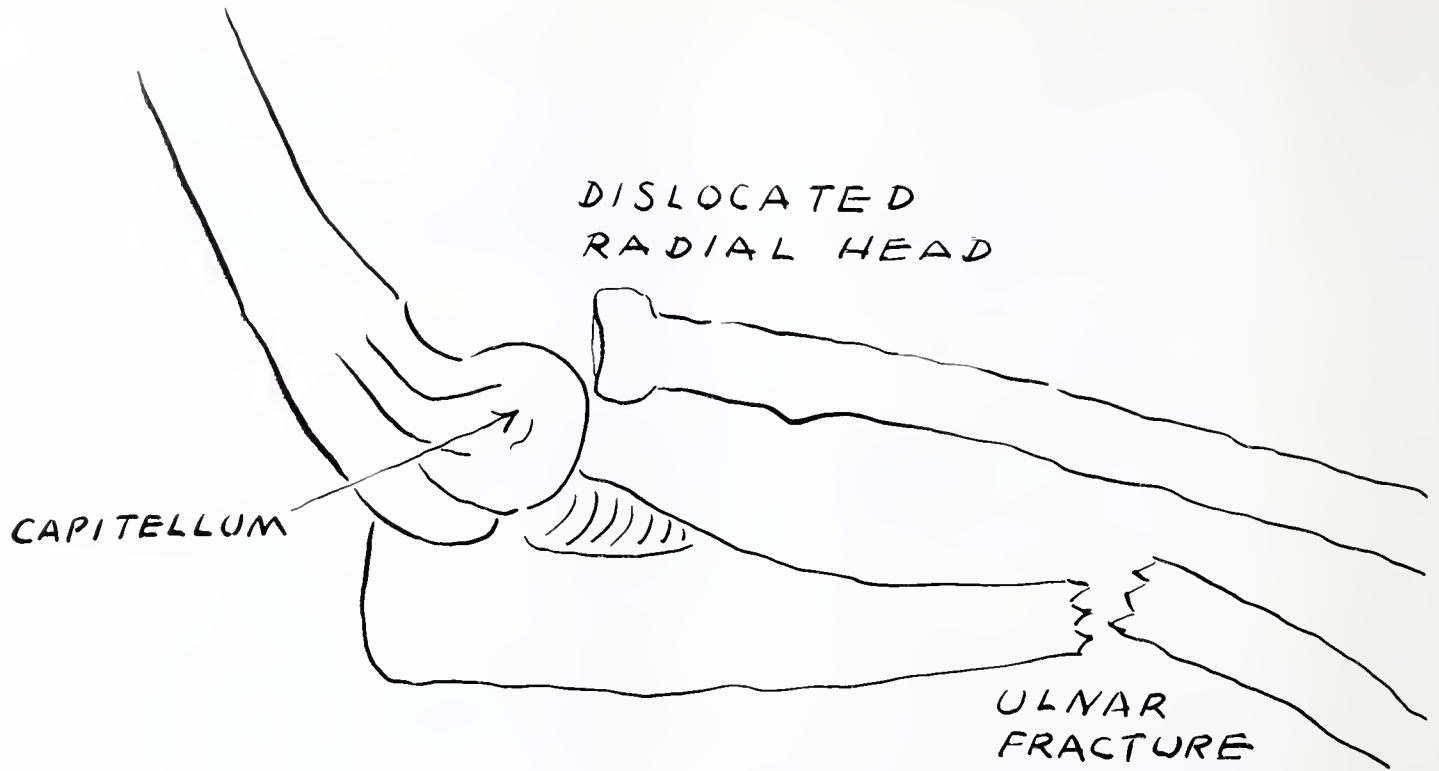
FUNCTIONAL RANGE OF
FLEXION - EXTENSION (60° - 120°) SHADED AREA
NORMAL RANGE OF MOTION. (0° - 180°)

Figure 1



FUNCTIONAL RANGE 60°
(SHADED)

Figure 2



MONTEGGIA'S FRACTURE

Figure 3

cally. If there is resistance or incomplete range of motion, suspect interposition or soft tissue, bone, or cartilaginous fragments, obtain at least two views after reduction and ascertain that a line through the center of the capitellum bisects the center of the radial head. (Figure 4)

Radial head fractures, (Figure 6) no matter how undisplaced, cause an inordinate amount of pain on the lateral side of the elbow and may occur in wrist fractures as the force may be transferred up the radius to the radial neck and head.

Closed reduction is not usually successful in displaced fractures of the radial head and neck. Removal of all fragments and neck resection, and even, some believe, a silastic radial replacement may be required.

Replacement of radial head does not allow complete and unrestricted use of the elbow but neither does resection without replacement. Both methods of treatment have their pros and cons and details of patients' occupations, habits, and desires should be carefully evaluated pre-operatively.

Motion should be commenced in a week by either method of treatment to attain a satisfactory range of motion. As with any elbow injury, some limitation should be expected and should not come as a surprise to either the patient or the

physician. It may be up to thirty degrees limitation even under ideal conditions of treatment. In relatively non-displaced radial head fractures, immobilization is carried out for two to three weeks, then institution of physical therapy, both active and passive range of motion. Be sure to re-X-ray the elbow prior to starting therapy to be sure it has not become displaced.

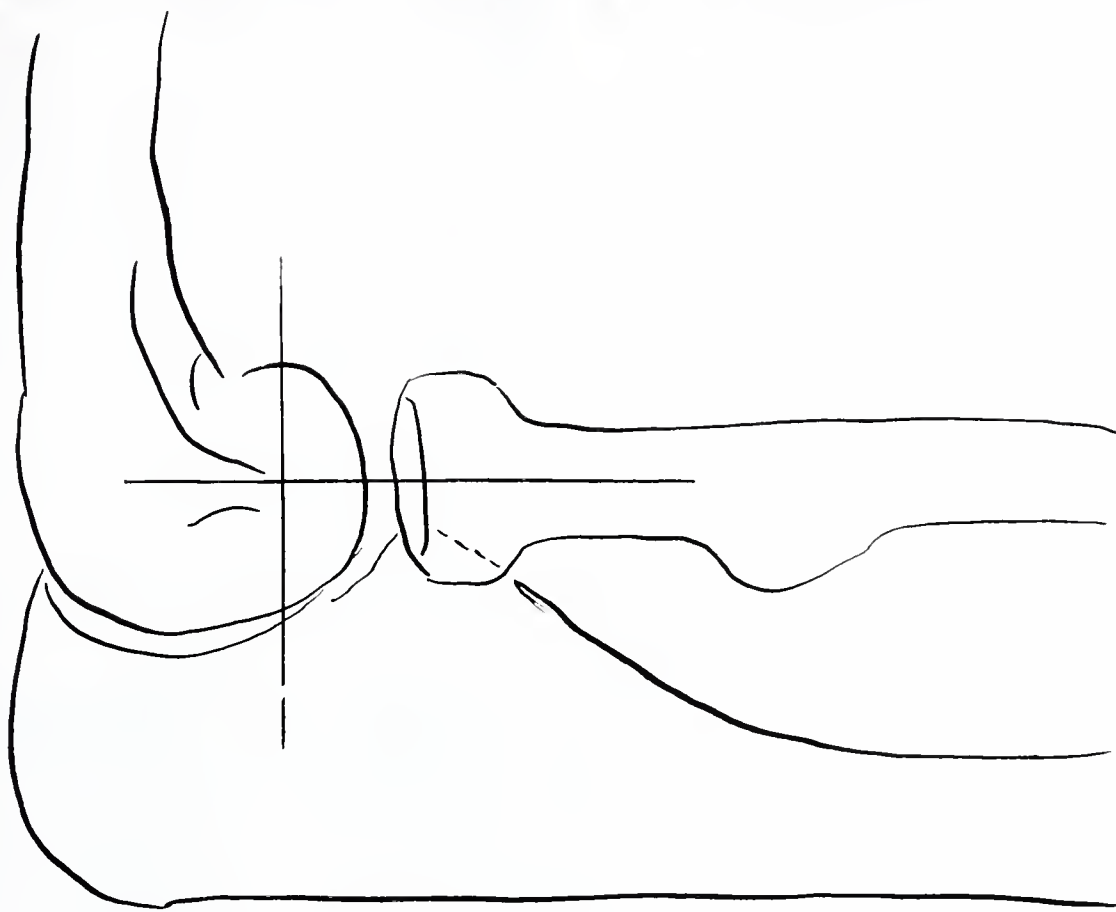


POSTERIOR DISLOCATION OF ELBOW

Figure 5

Supracondylar fractures may be anything from closed, undisplaced, transverse fractures to an open comminuted "open bag of bones." Almost

all require open reduction and meticulous internal fixation. The exception to this is the stable transverse supracondylar fracture which



RELATIONSHIP OF NORMAL
RADIO-CAPITELLAR JOINT
(LATERAL VIEW)

Figure 4



ASSORTED RADIAL HEAD
NECK FRACTURES

Figure 6

is treated with the elbow flexed to snug the triceps against the fragment until the fracture heals enough (3 to 4 weeks) to allow active motion. The other exception is the "bag of bones" fracture in the elderly and/or grossly debilitated patient in which open reduction is precluded. Fractures are better treated with debridement and protection by posterior splint and sling until pain has subsided, then begin active and passive motion in four to seven days. In this case, one must accept the awful X-ray appearance for a functional range of motion. An alternate method of treatment for these fractures is skeletal or Dunlop traction three to four weeks if patient is in the hospital for other injuries or reasons, or if surgery is precluded medically. Even then, early active motion (3 to 5 days) is commenced.

Olecranon fractures almost always involve the joint and the usual method of surgical treatment has been to affix with a wood screw. A more satisfactory method is resection of the proximal fragment and re-attachment of the triceps tendon to the remainder of the distal olecranon even when up to three-fourths of the joint surface is

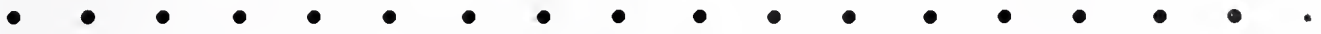
involved. Post-operatively, very early motion is recommended (3 days), flexion of over ninety degrees is encouraged after four weeks and full activity after six weeks.

Invariably some degree of post-traumatic arthritis occurs with elbow fractures and dislocations, and when severe enough, often are amenable to various arthroplasties and joint replacement. Non-union is probably better treated by excision of fragment and total elbow replacement rather than attempts at bone grafting. Total elbow replacement in our clinic has been a rather successful alternative to an otherwise unusable joint.

BIBLIOGRAPHY

1. Smith, Frederick M., M.D.: *The Upper Extremity of the Radius. Surgery of the Elbow*, ed. 2, Philadelphia, 1972, W. B. Saunders Company.
2. MacAusland, William R., Jr., M.D., Wyman, Edwin T., Jr., M.D.: *Fractures of the Adult Elbow. Instructional Course Lectures*, Vol. XXIV, St. Louis, 1975, The C. V. Mosby Company.
3. Eppright, Richard H., M.D., Wilkins, Kaye E., M.D.: *Fractures and Dislocations of the Elbow. Rockwood and Green Fractures*, Vol. 1, Philadelphia, 1975, J. B. Lippincott Company.



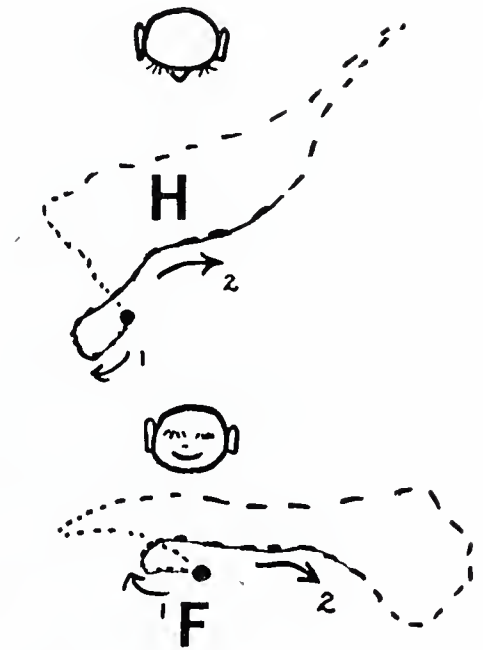
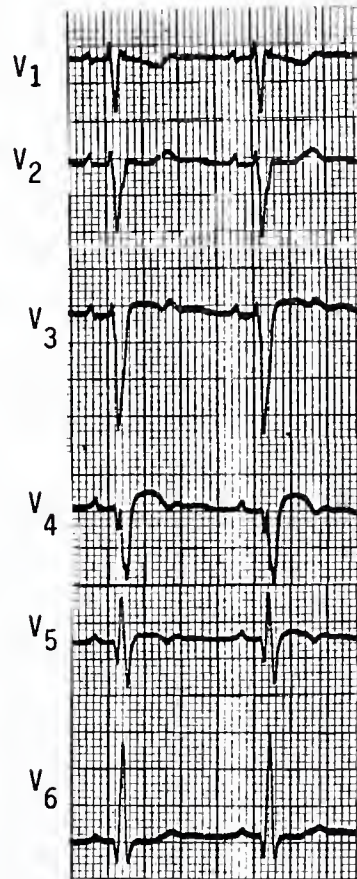
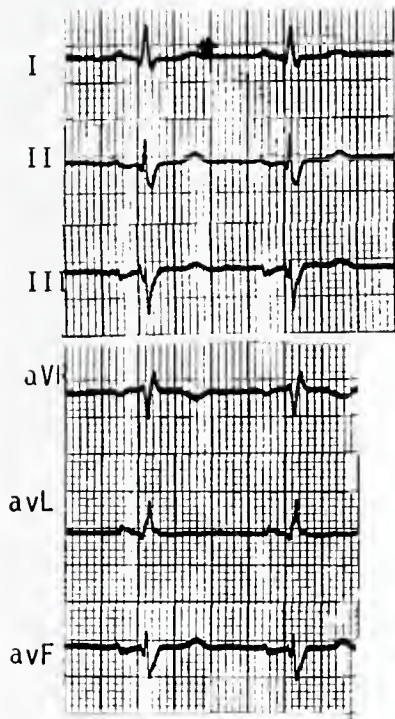


The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 406)

#46-52-17 June 15, 1976

54 yr old white male with previous History of infarction



John E. Douglas, M.D., Associate Professor, Division of Cardiology
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Histoplasmosis — Is It Masquerading in Arkansas?

Miss Charlotte Mills*

According to the 1974-75 Winter Blackbird/Starling Roost Survey conducted by the Department of Interior, U. S. Fish and Wildlife Service, Arkansas has 33 roosts containing an estimated 51½ million birds. Because of urbanization and the increase in winter blackbird, starling and pigeon populations, special attention should be given to the disease known as histoplasmosis.

In the summer of 1975, 68 people in the Garland County Courthouse developed a flu-like syndrome with dry cough, fever and prostration. Many had infiltrates on chest x-ray. Fifty were serologically diagnosed as histoplasmosis. Bird droppings containing histoplasma spores had been shoveled off the roof and appeared to cause the outbreak.

Histoplasmosis is an airborne disease caused by a fungus or mold known as *Histoplasma capsulatum*. The fungus enters the lungs where an infection begins usually resulting in a primary lung lesion. Histoplasmosis varies in severity from asymptomatic to widely disseminated chronic disease.

Five clinical forms of histoplasmosis are recognized: (1) Asymptomatic — detected by hypersensitivity to histoplasmin and a calcified primary lung lesion. (2) Acute benign respiratory varies from mild respiratory illness to temporary incapacity with weakness, fever, chest pains and dry cough. (3) Acute disseminated — resembling miliary tuberculosis and characterized by hepatosplenomegaly, septic-type fever and prostration. It is more frequent in infants and young children. (4) Chronic pulmonary — resembling chronic pulmonary tuberculosis. (5) Chronic disseminated — symptoms which vary depending on the organs infected.¹

Histoplasmosis should be suspected in a patient with flu-like illness and cough, especially in the summer when most cases occur. Care must be taken to rule out tuberculosis. Definitive diagnosis can be made by growing the fungus from the sputum of symptomatic patient, demonstrating a four-fold rise in histoserology, or a change from negative to positive skin test. (Since the skin test may cause a rise in serology, you cannot depend on serology if recent skin tests have been done.) A strong presumptive diagnosis can be made in a patient with classic x-ray findings, and symptoms after other causes of infiltrate have been ruled out. Many patients with acute histoplasmosis have a history of stirring up dust around construction sites, bird roosts, etc.

Acute histoplasmosis requires only supportive treatment — fluids, rest and antipyretics. Chronic or severe cases may require hospitalization and amphotericin B.

Histoplasma capsulatum organisms are found most often where bat, blackbird, chicken or pigeon dropping have accumulated for three years or more. The spores become airborne when the soil containing the fungus is disturbed.

Outbreaks of histoplasmosis can occur from disturbing contaminated silos, barns, belfries, basements, blackbird roosts, chicken houses, pigeon roosts and caves. The bird does not carry the disease, but their droppings enhance the soil in such a manner that favors the growth of the fungus. Although animals may become infected, the disease is not considered contagious because the fungus is not transmissible from man-to-man or from animals to man.

Prevention of histoplasmosis may be accomplished by avoiding locations which are known positive or suspected of being a potential health hazard. Those areas which contain *Histoplasma*

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capsulatum and must be disturbed may be chemically decontaminated.

The level of contamination must first be determined. Proper collection and recording of soil samples delineates the positive areas and is useful in calculating the quantity of chemicals required to decontaminate the site. When it has been decided that a site is to be sampled, the Arkansas Department of Health, Divisions of Vector Control and Public Health Laboratories should be contacted regarding proper collecting and sending of soil samples for fungal isolations.

Collecting of soil samples should be done only by persons with positive histoplasmin skin tests. These individuals should wear face masks and wet the soil before working on a potential positive site.

In order to determine the boundaries of the contaminated site and to establish the level of contamination, a number of specimens must be taken from the site. The number of samples collected from each site depends upon the number of square feet in the site.

The following table should be used to determine the number of sample areas needed in sites less than 7,200 square feet. Small amounts of soil taken at many places in each sample area should be combined for the specimens.

TABLE 1²

Areas in Sq. Ft.	Less than 100	100-399	400-899	900 or Greater
No. of Sample Areas (Specimens)	2	4	6	12

When a site is greater than 7,200 square feet, the following table should be used to determine the number of sample areas. Each sample should consist of small amount of soil taken from an area approximately two (2) feet in diameter.

TABLE 2³

Areas in Sq. Ft.	7,200- 14,400	14,401- 28,801	28,801- 57,600	57,601 or Greater
No. of Sample Areas (Specimens)	15	21	30	42

Each specimen should consist of approximately one-half pint of soil taken from the first 1-2 inches of soil only. Each sample should be collected in a plastic bag with a spoon, tongue blade or similar object. A different plastic bag or spoon should be used for each sample. The sample area number and date of collection should be written on the outside of each bag with a permanent marking pen. A diagram of the roost

denoting the location and number of each sample area must be prepared.

In order to confirm decontamination, the location of soil specimens should be marked, so that specimens taken after treatment can be collected from the same place. Post treatment samples should be taken at monthly intervals for three months; at six months and one year.

One chemical which has been effective for chemical decontamination is formaldehyde. The base solution called formalin consists of 37%, by weight, formaldehyde gas in water stabilized with 10-15% methanol. Formalin is a colorless liquid with a strong odor and vapors which are very irritating to eyes, nose and throat. Extreme caution should be taken when using this chemical.

Decontamination should be attempted only when outside temperature is 60-90 degrees F.

The decontamination process should consist of a 4% formalin solution. The fungicide should consist of the following: to each 3 gallons of base solution, 97 gallons of water is added (0.3 gallons base solution to 9.7 gallons water).⁴

A total of one gallon of fungicide should be applied for each square foot of the area. The prepared fungicide should be divided into three (3) equal parts applied on three (3) consecutive days. Each application should be applied in such a method that will evenly cover the area allowing maximum penetration with minimum run-off. Caution must be taken to make sure the solution does not enter any water supply system.

Prior to decontaminating a roost of significant size, a detailed work plan should be prepared and submitted to the Arkansas Department of Health, Division of Vector Control, as well as to the Arkansas Department of Pollution Control and Ecology. This work plan should include a detailed outline of the method of preventing run-off of the formalin solution into waterways. The results of soil permeability tests should also be included.

Another means of controlling blackbirds is the utilization of pyrotechnics. Pyrotechnics consists of whistle bombs, bird bombs, shell crackers, automatic explosives and amplification units using distress calls.

FOOTNOTES

1. Abram S. Benenson, *Control of Communicable Diseases in Man*, (Washington, D. C., American Public Health Association, 1975), p. 153.
2. Fred Tosh, Irene Doto, Donn D'Alessio, Antone Me-

deiros, Stanley Hendricks and Tom Chin, *The Second of Two Epidemics of Histoplasmosis Resulting from Work on the Same Starling Roost*, p. 406.

3. Draft pamphlet developed for Communicable Disease Control Seminar — Histoplasmosis Decontamination, p. 4.

4. Draft pamphlet developed for Communicable Disease Control Seminar — Histoplasmosis Decontamination, p. 5.

5. Draft pamphlet developed for Communicable Disease Control Seminar — Histoplasmosis Decontamination, p. 7.



EDITORIAL

Thyroid Studies

Alfred Kahn, Jr., M.D.

Oppenheimer (New England Journal of Medicine, Volume 292, Page 1063, May 15, 1975) has published a seminar on "The Initiation of Thyroid Hormone Action." The ultimate chemical basis of how thyroid hormones produce their effects has not been clear. The author relates that there are several current theories as to the site of action on the target cell. One theory is that the thyroid hormones effect their result "by augmentation of the transcription of genetic information" — resulting in new protein formation. The other view of thyroid hormonal action was that they acted on extra nuclear organelles — as mitochondria. The latter theory is opposed by the author as it was based on in vitro studies; physiologic concentrations of fluids did not contain enough hormone to produce the chemical changes attributable to thyroid stimulation. Oppenheimer's studies further indicate that T-3 (triiodothyronine) had binding sites in the cell; about 10% is found in the nuclei and 90% is bound non specifically to the extra-nuclear intracellular contents. T-3 can go from the plasma into the cells rapidly, and T-3 in the nuclei of cells can exchange with cytoplasmic nuclei; thus T-3 can migrate into the cell nuclei without difficulty — and it has been shown that there are

specific T-3 binding sites in the nuclei; these sites are of limited capacity. The author's work and others indicate that there is a relationship between the number of nuclear binding sites and the tissue responsiveness to T-3; the number of binding sites differs from tissue to tissue. The length of time T-3 is bound to the nucleus helps determine its response, and it is said that some analogs of T-3 are not as effective as they are not bound as long. Oppenheimer concludes that the nuclear binding of thyroid hormone is important to obtaining the T-3 effect. No specific receptor has been found in the mitochondria.

Marsden, Chalkley, Leatherdale, Howorth, Acosta and McKerron in Lancet (Volume 1, Page 944, April 26, 1975) have reviewed their experience in "Hormonal Patterns In Relapse in Hyperthyroidism." They found that serial serum T-3 estimation was the best way to detect recurrent hyperthyroidism. They studied 22 patients with Graves's disease who had received either drug or radiation therapy; the study lasted up to 13 months in some patients. The patients were followed by T-3 and T-4 estimations; TSH (Thyroid stimulating hormone) assays were also performed. After antithyroid therapy, there is a tendency for T-3 and T-4 to rebound to an elevated level; at

this time the TSH level is usually low. These early changes for a few weeks are not a meaningful yardstick according to Marsden et al. However, later on elevations are important. On a group of 13 chemically treated cases the first sign of relapse in five patients was an elevated T-3; in seven others relapse was discovered by a simultaneous rise of T-3 and T-4. In only one patient did the T-4 rise before T-3. Thus in following patients with treated hyperthyroidism the best test is the T-3 — for monitoring recurrent hyperthyroidism.

Grove has reviewed exophthalmos in *The New England Journal of Medicine* (Volume 292, Page 1005, May 8, 1975). He defines it as "An abnormal prominence of one or both globes usually resulting from a mass lesion, a vascular abnormality, or an inflammatory process." A difference of 2 MM of protrusion suggests unilateral exophthalmos. There is pseudo-exophthalmos and Grove warns against mistaking asymmetric orbits, myopia, trauma, glaucoma, etc., with true exophthalmos. Hyperthyroidism is the commonest cause of exophthalmos. Pseudo-orbital

tumors are sometimes found. Tumors are also found in descending order of frequency as metastatic carcinoma, lymphangioma, idiopathic inflammation, lymphoma, etc. In Graves's disease, the exophthalmos is caused by interstitial edema of periorbital fat and all other intraorbital tissue including muscles. The edema fluid is rich in mucopolysaccharides. In searching for the cause of exophthalmos, a number of diagnostic measures are currently in use including, of course, plain x-ray films. Xeroradiography has been used, but is technically difficult due to long exposure times. Tomography is said to be somewhat helpful. Venography can be used to outline masses and varices — as can arteriography. Gas injection into the orbit has been used to obtain extra contrast but has limited use. The use of thermography to detect temperature differences has apparently not been successful very often. Radionucl examinations as scanning can show enlarged extraocular muscles but are difficult to interpret. Ultra sound has been used with some success as has computerized tomographic scanning.

Continuing papers on thyroid metabolism and disease indicate there is still much to be known.



MEDICINE IN THE



THE MONTH IN WASHINGTON

Washington lawyer, Joseph Califano, Jr., one of Lyndon Johnson's top "Great Society" architects, has been named Secretary of the Health, Education and Welfare Department.

The 45-year-old native of Brooklyn is regarded as one of the Capitol's brightest men. He knows the workings of government inside out. He knows most of the Congressmen of importance to HEW. And he knows most of the programs — many of them established during the "Great Society" days — that he will now administer.

The appointment of Califano to the politically sensitive position was the final cabinet selection

by Carter, and was one of the best received. Liberals, including Ralph Nader, saw in Califano's "Great Society" background a promise of a bigger and better "Great Society;" conservatives found reassurance in Califano's reputation as a steady political veteran who is interested in cutting down on waste and inefficiency.

Most of Califano's efforts on behalf of Johnson as the President's chief domestic adviser in the mid-1960's was in the welfare and education areas rather than health where he doesn't have much of a track record.

He knows what he is up against at HEW. In a speech last summer, Califano said a new Presi-

dent will have a tough time coping with the entrenched bureaucracy. "The departments and agencies of the federal executive are a minefield of bureaucratic interests jealous of their jurisdictional turf," he said. The programs and their constituencies outside government "will be poised to oppose any change in the status quo."

Califano carved a reputation as an exceptionally able lawyer during the out-in-the-cold eight years of Republican administration. It isn't unusual for top officials of outgoing administrations to land plushy jobs with Washington law firms, but Califano demonstrated that he was far more than a contact man. He was with the famous Arnold and Porter firm here, then he teamed with the equally prestigious Williams (Edward Bennett) and Connolly firm where he served as counsel to the Democratic Party for two and a half years. After Harvard Law School he joined a New York law firm which once was headed by Thomas E. Dewey.

Califano was first attracted to Washington with the election of John Kennedy. He joined the Defense Department where he quickly became one of Defense Secretary Robert McNamara's "Whiz Kids." Lyndon Johnson asked him to come to the White House to serve as his domestic aide. There he was known as a driving, tough negotiator between labor and management over wage-price guidelines. He was interested in a systems-analysis approach to budgeting federal agencies which should mesh with Carter's enthusiasm for "zero-based" budgeting.

If Carter carries out his promise to give his department heads plenty of rein in policy matters, Califano might emerge as the chief policy architect in health affairs. Certainly Carter will rely heavily on him for advice. After years as a behind-the-scenes power, Califano will now be in the limelight.

* * * *

A concerted and united effort by industry and labor to control medical costs is needed to avert a federal takeover of health which would "result in national expenditures of truly astronomical proportions," contends the President's Council on Wage and Price Stability.

Asserting that the day is coming fast when the people discover "how much they must increasingly sacrifice simply in order to maintain the status quo in health care services," the Council

said the public's response would be to turn to the government for a solution.

"Absent any major changes in the structure of the medical care system between now and then, the federal government will step in, and when that happens, we are going to be faced with a permanent problem which will defy solution," said William Lilley, acting Council Director, and his deputy James Hedlund.

In a lengthy report on rising health care costs, the Council said "cost control incentives proposed by the private sector — that is, by industry and labor — promise to be more effective than those imposed by the multitude of government agencies which have attempted to tackle the problem . . . the private sector is motivated by an economic incentive which the government will simply never share."

The report said the government, in its Medicare and Medicaid programs, has a poor record of controlling costs. "The blizzard of rules and regulations which would accompany full federal financing and administration of the health industry would add to costs and reduce the limited incentives that now exist for efficiency and cost containment," the Council said.

The report pointed to company programs which encourage a second opinion before elective surgery. Some corporations have set up in-house medical facilities because they have learned that this is a less expensive way of providing their employees with health care, says the Council. "Health maintenance units with salaried physicians have reduced costs," according to the report. "In other localities, corporations and unions have become involved on hospital boards and areawide planning bodies to eliminate duplication of facilities and introduce other cost-saving efficiencies."

The Council said "the private sector must step up its efforts many fold — it must apply the full measure of ingenuity and management skills which are so characteristic of the American system. In short, the private sector must start doing more, a lot more."

The report mentioned "strong opposition from a highly respected, well-organized medical establishment. Private efforts at cost-control are difficult to undertake in the face of this opposition, and difficult to achieve, but we remain convinced that the goal of quality health care, at reasonable costs, is attainable within the context

of a largely privately disciplined system. Indeed, we feel it is only within the context of the private system that it is attainable.”

* * * *

The American Medical Association and state and local medical associations “have played a central role” in helping the Senate spotlight Medicaid fraud and abuse. The credit was given by Sen. Frank Moss (D-Utah), Chairman of the Senate Aging Subcommittee that conducted the well-publicized investigations of “Medicaid Mills” earlier this year.

The Senator also said “the number of physicians who cheat” is very small.

In a letter to Richard E. Palmer, M.D., President of the AMA, Moss said “The Illinois Medical Society, the Chicago Medical Society and the Illinois Physicians’ Union were directly responsible for my subcommittee’s exposure to the problem of Medicaid ‘Mills’.”

The abuses highlighted in the subcommittee’s report “exist for many reasons but AMA inaction isn’t one of them,” said Moss.

The Senator said the subcommittee’s criticism “was not directed at contemporary medical practice.”

“It was directed at a growing aberration in our urban ghettos called the Medicaid ‘Mill’. The culprits we identified are greedy businessmen and real estate speculators. The same people we found pyramiding nursing home mortgages in New York. Now they have found a new gravy train. They hire foreign-trained physicians (we include podiatrists and chiropractors in the definition) and pressure them to see more and more patients in less and less time. The entrepreneurs keep from 50 to 70 percent of the money Medicaid pays to the foreign practitioner . . .”

Poor quality care results, Moss said. “It could hardly be otherwise given the low Medicaid rates, the great delays in payments, the often and arbitrary denials of payment as well as the all-encompassing pressure exerted on mill practitioners to grind patients through the mill. Little wonder reputable physicians avoid Medicaid practice. Even the best intentioned physician would have difficulty functioning in this kind of environment.”

In Medicaid, the “ripoffs” are taken by the clinic owners who more often than not are not physicians, said Moss.

The number of providers who abuse the

Medicaid system may be four percent of total Medicaid participating physicians (including chiropractors and podiatrists) or less than two percent of all physicians in the United States, he said. This is hardly a blanket indictment.

Moss endorsed a statement by Dr. Palmer that other providers have a far worse track record as far as cheating the system. “I would include, for example, nursing homes, pharmacies that specialize in welfare clientele and clinical laboratories that do a high volume of Medicaid business.”

The lawmaker wrote that “only with the assistance of the Medical profession can we seek to end the fraud and abuse which now haunts our government health care programs. We can bring providers who bill for services not rendered to the bar of justice but a more complicated scheme inevitably involves questions of medical judgment which only physicians are capable of rendering.”

* * * *

A commission to study prescription drug usage and adverse reactions has been formed with the blessings of Senator Edward Kennedy (D-Mass.) and the funding of the Pharmaceutical Manufacturers Association (PMA).

PMA answered a challenge by Kennedy that the drug makers confront the problem by agreeing to fund an independent study commission for three years at \$250,000 annually.

“The problem of adverse drug reactions is definitely a problem,” stressed PMA’s Chairman Robert R. Clark.

Both Clark and Kennedy hope the commission will be able to design a system for post-marketing surveillance of drugs by the Food and Drug Administration so that both adverse reactions as well as new drug indications become more quickly known. Such a system, termed “Phase IV” by Kennedy, could shorten the wait for pre-market approval of new drugs.

The 18 members of the Joint Commission on Prescription Drug Use were nominated by pharmaceutical and medical groups including the AMA.

* * * *

Drug abuse remains a “chronic, persistent problem” in the United States with no simple solutions in sight in the opinion of a joint annual report by federal agencies involved with drugs. The report proposed no basic shift in

federal policy toward drug abuse, but suggested the possibility of lifting or easing criminal penalties for smoking marijuana.

The Strategy Council on Drug Abuse declared the government "ought to strongly discourage the use" of marijuana. "The question, however, is how do we most effectively accomplish this with the least cost to society."

President-elect Jimmy Carter said during his campaign he favored decriminalization of possession of small amounts of the product, but he supported continued crackdowns on sale and distribution.

According to the report, marijuana carries a "relatively low social cost." Some 22 million Americans smoked marijuana last year, a "saturation" total that should prod the federal government into a decision on whether to continue to approach its use on a criminal basis.

The Council is composed of the Drug Enforcement Administration (DEA), the National Institute on Drug Abuse, the State Department and the White House.

* * * *

Congress is showing increased interest in the problems of maintaining confidentiality of medical records in the age of computers and vast federal medical programs. The House Commerce Subcommittee on Oversight and Investigations is considering hearings on the issue next year.

The most serious evidence of abuse so far came with state grand jury indictments in Denver, Colo., of an investigative company — Factual Service Bureau, Inc. — on charges of selling confidential records to large insurance firms. Factual was alleged to have had agents who were able to penetrate the records of the Federal Bureau of Investigation and the Internal Revenue Service, among others. Twenty defendants, including three insurance companies, have been indicted so far in the investigation launched by Colorado District Attorney Dale Tooley, who claims the evidence so far "is really the tip of a nationwide iceberg." Federal agencies are also pursuing the case.

The House Oversight Subcommittee, headed by Rep. John Moss (D-Calif.), is carrying on a running dispute with the Social Security Administration over the privacy of medical records in the Medicare program. "We believe very serious questions remain about privacy of records concerning individuals in custody of the Social

Security Administration, especially in light of future plans," said Moss in a letter to Social Security Chief James Cardwell.

Social Security operates three data transmission systems which link private Medicare intermediaries with the Social Security Health Insurance Data Bank. The two less sophisticated computer systems, the Advanced Record System (ARS) used by private Medicare intermediaries in 16 locations, and the Programmable Magnetic Tape Terminals (PMTT) used by Blue Cross, Blue Shield, and all but two other private intermediaries, use record retrieval systems "which cannot be abused by any employee of a private contractor either in an authorized or unauthorized manner," said Moss.

* * * *

The HEW Department has published final regulations under which Medicare providers may obtain judicial review of any final decision of the Provider Reimbursement Review Board, or of any reversal, affirmance, or modification by the Secretary.

The five-member Provider Reimbursement Review Board under Medicare hears Medicare appeals by institutional health care providers who disagree with the cost determinations made by health insurance organizations acting as fiscal intermediaries in Medicare hospital insurance.

Under the regulations, a Medicare provider may file for judicial review by a Federal Court after the final decision of the Provider Reimbursement Board, or the HEW Secretary, but must do so within 60 days of the final decision.

HEW can review any decision of the Board but must do so within 60 days after the provider has been notified of the Board's decision.

* * * *

The Medical Screening Program for children of poor parents has come under new attack. The Southern Regional Council, a private research group, said a study of 23 southern communities revealed "evidence of bureaucratic and political resistance to meeting the health needs of the program's relatively small target population — those under 21 years of age who are eligible for Medicaid."

Rep. John Moss (D-Calif.), Chairman of the House Commerce Subcommittee on Oversight and Investigations, has been a severe critic of HEW's operation of the early and periodic screening, diagnosis and treatment program. The

Regional Council's report supported the Moss Subcommittee's earlier findings of lack of progress in the program.

The criticism is expected to be used to advance the cause of proposals in Congress to federalize Medicaid and to install new federal benefits for children and mothers.

* * * *

The American Association of Ophthalmology (AAO) has endorsed the national health insurance plan backed by the AMA in a position paper distributed to all members of Congress.

The Association said Ophthalmologists support the concept of legislation proposed by the AMA which "federalizes Medicaid, makes available variable tax allowances toward the purchase of health insurance depending on the taxpayers' taxable income, and offers catastrophic insurance to all."

The AAO said its membership "is aware that improvements are needed in care and financing of care in underserved areas which include the inner city, some remote rural areas, and for certain under-privileged population groups. Also that provision for expensive catastrophic illness is necessary. It is also aware that fiscal limits are dictated lest this nation err as have other countries that have overburdened their taxpayers with excessive program costs."

* * * *

Harley M. Dirks, former chief staff member of the Senate Appropriations Subcommittee on Labor and Health, Education and Welfare, has joined the AMA's Washington Office as an assistant director in the Congressional Relations Department.

The 48-year-old Dirks, a native of the state of Washington, is one of the best-known figures in the Nation's Capital in the health field. As chief staff man on the Senate Subcommittee, he developed a thorough knowledge of the workings of health both in the executive and legislative fields. A book on Congress entitled "The Dance of Legislation," published several years ago, refers to Dirks as "an almost legendary figure on Capitol Hill" due to his influence and expertise in the health funding arena.

* * * *

WHITE RIVER MEDICAL ARTS BUILDING

The new White River Medical Arts Building has become a reality for the doctors of Batesville. The new building covers 22,000 square feet of

floor area and will provide enlarged space for all facilities.

Physicians located in the new structure are Drs. F. Q. Wyatt, Charles Taylor, Chaney Taylor, Jim Lytle, Bob Smith, William Alexander, Jim Stalker and Kenneth Kelley, who will be relocating in Batesville from Poplar Bluff, Missouri.

FAMILY HEALTH CLINIC

A new clinic is now in full operation in Lepanto in the Sternberger Clinic Building. It is a satellite of the East Arkansas Family Health Center and has two physicians serving the community, Dr. Robert Crawley and Dr. Abed El Khoja.

This clinic is funded by the Department of Health, Education and Welfare and will base its fees on a sliding scale of ability to pay. The facility has an emergency room, x-ray room, laboratory for blood work and several consultation rooms, in addition to a large reception room.



THINGS TO COME

CONTINUING EDUCATION FOR PHYSICIANS

All programs for C.E.P. are held at the University of Arkansas College of Medicine unless otherwise indicated.

March 24 — "A Symposium for Preceptors," Dr. Ben Saltzman, program director. Attendance will be limited to 100 individuals.

April 15-16 — "New Developments In the Care of Spinal Cord Patients," Dr. Ben Saltzman, program director.

May, no date — "National Orthopaedic Seminar — The Hip," Dr. Carl Nelson, program director.

May 14 — "Spring ENT Seminar for Family Physicians," Dr. James Suen, program chairman.

May 20-21 — "Clinical Anesthesia," Dr. Richard Clark, program director.

June 3-4 — "Basic Principles of ASIF Fixation," Dr. Carl Nelson, program director.

No Date — "Clinical Obstetrics and Fetal Maternal Medicine," Dr. David Barclay, program director.

August 4-5 — "Sports Medicine Seminar," Dr. Carl Nelson, program director.

SOUTHWEST ALLERGY FORUM

The Southwest Allergy Forum will hold its meeting at Lakeway Inn near Austin, Texas, April 30 - May 4, 1977.

For further information, write J. B. Carter, M.D., Suite 107, Medical Park Tower, Austin, Texas 78705.

UROLOGY ONCOLOGY SEMINAR

The University of Texas Health Science Center at Houston, Division of Continuing Education, and the University of Texas System Cancer Center M. D. Anderson Hospital and Tumor Institute will present the Second Annual Urology Oncology Seminar on Thursday and Friday, July 28th and 29th, 1977, in the Auditorium of the M. D. Anderson Hospital Texas Medical Center in Houston.

This program is designed to cover, in-depth, the diagnosis, staging and treatment of the various urological malignant diseases. Emphasis will be placed on treatment as it relates to the stage of disease and the necessity for a multidisciplinary approach.

For further information please contact:

The University of Texas Health Science Center
Houston, Texas

Division of Continuing Education

Post Office Box 20367

Houston, Texas 77025

or call: (713) 792-4671

MINI-SYMPOSIA "PULMONARY EMBOLISM"

May 18th, 1977, St. John Medical Center in Tulsa, Oklahoma, and the University of Oklahoma, Tulsa Medical College, will jointly sponsor a mini-symposia on Pulmonary Embolism. The meeting will be held in the St. John Auditorium of the Administrative Service Building located at 1802 East 19th Street, Tulsa, Oklahoma.

Speakers for the program will be Dr. Robert W. Parkey, Chief of Nuclear Medicine, Associate Professor of Radiology, Southwestern University, in Dallas, Texas, and Dr. Herbert L. Fred, Director of Medical Education, St. Joseph Hospital, Houston, Texas.

The meeting is scheduled for 1:00 P.M. to 5:00 P.M.

Other symposiums planned for 1977 are:

"What's New In Peptic Ulcer Disease," September 21, 1977.

"Update In Endocrine Disease," November 16, 1977.

POST GRADUATE COURSE ON GASTROINTESTINAL DISEASES

New York University Post Graduate Medical School offers course #3-7, "Gastrointestinal Diseases, New Developments In the Diagnosis and Treatment for the Internist and Primary Care Physician." Course director is Arthur E. Lindner, M.D.

This course is based on new developments in clinical gastroenterology and appropriate basic sciences and is distinctly oriented toward day-to-day practical management of patients with emphasis on the more common disorders. Aspects of the entire gastrointestinal system are reviewed — esophagus, stomach, small bowel, colon, pancreas, gallbladder, and liver. Newer diagnostic techniques and management approaches are discussed. The course aims to provide the internist and primary care physician with current and practical information on both office and hospital diagnostic and treatment strategies.

For further information, contact:

Ms. Stacey Brown, Registration Office

NYU Post-Graduate Medical School

550 First Avenue, New York, New York 10016

or call: (212) 679-3200, Extension 4207

This Continuing Medical Education offering meets the criteria for 18 hours of credit in Category I for the Physician's Recognition Award of the American Medical Association. Approval pending for 18 prescribed hours of credit by the American Academy of Family Physicians.

SYMPOSIUM ON COMMON PEDIATRIC PROBLEMS

Children's Hospital National Medical Center and George Washington University are sponsoring a three-day Symposium on Common Pediatric Problems on June 8-10, 1977, in Washington, D.C. It features a symposium on hematology, oncology, and immunology, a symposium on adolescence, and a day of workshops. Guest faculty members are Drs. Robert Baehner, Lewis Barnes, Harvey Colten, Charles Dinarello, Margaret Smith, and Sheldon Wolff.

The Continuing Medical Education Program has been approved for credit by the AMA and the AAFP. Further information may be obtained by writing to Mrs. Susan Weiss, 13407 Brackley Terrace, Silver Springs, Maryland 20904.



PERSONAL AND NEWS ITEMS

DR. KOHLER APPOINTED

Dr. Peter O. Kohler has been named head of the Department of Medicine at the University of Arkansas College of Medicine, effective June 1. Dr. Kohler will also be chief of medical services at the University Hospital.

Dr. Kohler comes to Arkansas from Baylor University where he was Chief of Endocrinology and Professor of Medicine.

DR. CHAMBERS ATTENDS SEMINAR

Dr. Carlton Chambers, Harrison otolaryngologist, recently attended a six-day seminar in current techniques of cosmetic surgery of the face.

DR. PEEPLES IN NEW BUILDING

Dr. C. W. Peebles, West Memphis internist, was the first occupant of the Crittenden Memorial Hospital's new \$1.3 million Professional Office Building. The building is located just west of the hospital and is a three-story structure, having 10,000 square feet of floor space.

A committee has been set up to study the possibility of taking part in a Robert Wood Johnson Foundation program to develop primary group practice. This would consist of gathering together family practice, internal medicine and pediatric physicians into one office in the building. Dr. T. Murray Ferguson is the overall chairman of the committee. Representing the staff are Drs. H. G. Langford, Milton Deneke and L. T. Utley.

DR. MOODY ELECTED

Dr. Lackey Gene Moody, Batesville general practitioner, was recently named a member of the board of directors of the Citizens Bank of Batesville.

NEW HOSPITAL STAFF

Dr. O. H. Clopton, Jonesboro internist, has been elected chief of staff at St. Bernard's Regional Medical Center for the coming year. Other officers elected are Dr. Don Vollman, vice chief of staff, and Dr. E. Barrett Sparks, secretary-treasurer. Chiefs of services will be Dr. John St. Clair, chief of surgery; Dr. W. T. Rainwater, chief of medicine; and Dr. John Kirkley, chief of obstetrics.

DR. GUENTHNER SPEAKS

Dr. John Guenther of Mountain Home recently addressed the Baxter General Hospital Auxiliary.

DR. J. W. MORRIS HONORED

Dr. J. W. Morris, retired McGrory physician, was recently awarded the Grand Lodge Medal of Honor by the Grand Lodge F & A M of Arkansas.

DR. RAINWATER NEW CHIEF OF STAFF AT OUACHITA MEMORIAL HOSPITAL

A Hot Springs obstetrician-gynecologist, Dr. W. S. Rainwater, has been named new chief of staff for the Ouachita Memorial Hospital. Other officers are Dr. Robert Borg, vice chief of staff, and Dr. Jim McMahan, secretary.

DR. ELKINS TO ROGERS

Dr. James P. Elkins, a native of Arkansas, has recently moved to Rogers where he will be associated with Dr. Harry Harmon at the Rogers Clinic for Women and Children, 1014 West Poplar.

WALDRON'S NEW DOCTOR

Dr. William Roy Swicegood will begin the practice of medicine in Waldron early this spring. Dr. Swicegood is a native of Beaumont, Texas, and completed Family Practice residency training in Chicago, Illinois.

DR. GARLAND CHIEF OF STAFF

Dr. William Garland was elected chief of staff of the Boone County Hospital in Harrison. Dr. Charles Ledbetter is the new vice chief of staff; Dr. Thomas Hoberock, secretary; Dr. W. P. Ashford, medical staff liaison officer, and Dr. R. H. Langston, medical staff liaison officer-elect.

NEW PHYSICIANS IN CORNING

Dr. H. E. Lestman has assumed charge of the Kneibert Clinic in Corning and Dr. Jerry Boyles has begun practice in the Corning Medical Center on Second Street.

Dr. Boyles will be in his office five days a week as a satellite project of the Paragould Medical Center. He will be assisted by Barney McCollough, physician's associate.

Dr. Lestman will commute from Fairdealing.

Missouri, five days a week. He was previously in practice in Doniphan, Missouri.

HEART FUND CHAIRMAN

Dr. Robert Thurlby, Russellville internist, has accepted the responsibility of being the 1977 Heart Fund chairman for Pope County.

DR. MULHOLLAN SPEAKS

Dr. James Mulhollan, orthopaedic surgeon from Little Rock, spoke recently to the Central Arkansas Chapter of Orthopaedic Nurses Association in Little Rock.

LIFE SUPPORT COURSE

Dr. R. A. Etherington, Eureka Springs family practitioner, and Dr. G. E. Malone, Atkins general practitioner, were participants in the recent advanced life support course which was sponsored by the University of Arkansas College of Medicine and the Arkansas Heart Association.

OUACHITA HOSPITAL STAFF

New staff officers of Ouachita Hospital in Camden are Drs. Jerry Kendall, A. E. Thorne, J. B. Jameson, Cal Sanders, Robert Nunnally, Dennis Davidson, L. E. Drewery and L. V. Ozment.

DR. HAIRSTON RETIRES

Dr. Glenn G. Hairston, Prescott general practitioner, announced his plans to retire early this year. He has been in practice in Prescott since 1946 and plans to remain in Prescott after retiring.

DR. COKER SERVES STAR CITY

Dr. L. Randle Coker, Pine Bluff family physician, is practicing part-time in Star City to relieve the physician shortage in that town.

DR. MOBLEY NAMED DEAN OF COLLEGE

Dr. Jack E. Mobley, graduate of the University of Arkansas College of Medicine and the head of the Department of Urology at the University, has been named the Dean of the East Tennessee State University College of Medicine at Johnson City, Tennessee.

ARKANSAN HEADS MEDICAL UNIT

Dr. Thomas A. Rado, senior medical student at the University of Arkansas College of Medicine, has been elected president of the Organization of Student Representatives of the Association of American Medical Colleges. He was chosen by the representatives of ninety-four med-

ical schools at the recent national convention at San Francisco.

CONWAY HOSPITAL STAFF

New officers of the Conway Memorial Hospital for 1977 will be Drs. Tom Beasley, Margaret Beasley, and Bob Banister.

NEW SPRINGDALE PHYSICIAN

Dr. Joel Mills, a graduate of the University of Arkansas School of Medicine, has joined with Drs. Stanley Applegate and John R. Powers, at the Springdale Clinic. Prior to coming to Springdale, Dr. Mills was with the State Department in Iran.

GARLAND COUNTY OFFICERS

The new officers of the Garland County Medical Society for 1977 are Drs. Bill Springer, president; John B. Bond, secretary, and Jim Gardner, vice president.

ENDOSCOPIC SOCIETY

The annual board meeting of the Arkansas-Oklahoma Endoscopic Society was held recently in Tulsa, Oklahoma. Drs. Donald G. Browning, Little Rock; Charles H. Paris, Fort Smith, and E. Clinton Texter, Jr., of Little Rock attended.

Plans were made for the annual meeting of the Arkansas-Oklahoma Endoscopic Society to be held in Little Rock on June 10-12, 1977, at the Camelot Inn.



NEW MEMBERS

SEBASTIAN COUNTY MEDICAL SOCIETY'S NEW MEMBERS

There are several new members of the Sebastian County Medical Society. The new members in Fort Smith are:

DR. JOHN M. DEATON, cardiologist, who

is associated with Holt-Krock Clinic at 1500 Dodson Avenue. He was born in Fort Worth, Texas, and received his pre-medical education at Texas Christian University. Dr. Deaton was graduated from the University of Texas Medical Branch in Galveston in 1969. He interned at the Galveston Medical Branch and also was in residency there for four years, specializing in internal medicine and cardiology.

Dr. Deaton was in the United States Army Reserves from 1974 to 1976. He is certified by the Internal Medicine Board.

DR. CHRIS F. DENNIS is an anesthesiologist associated with Holt-Krock Clinic, 1500 Dodson Avenue. He was born in Kansas City, Missouri, and attended the University of Missouri Medical College in Kansas City where he received his M.D. degree. He interned at the University of Kansas, and received residency training at the University of Kansas and the University of Missouri. Dr. Dennis is board eligible and a member of the American Society of Anesthesiologists.

DR. JOHN E. LEWIS, dermatologist, is with Holt-Krock Clinic. He was born in Houston, Texas, and attended the University of Texas Medical Branch in Galveston, Texas. He interned at Philadelphia General Hospital. Dr. Lewis was a surgery resident at Mayo Clinic in Rochester, Minnesota, for one year and was at the University of Pennsylvania Hospital for residency training of dermatology for three years. He served in the United States Army from 1970 to 1972. Dr. Lewis is board eligible in dermatology and a member of the American Academy of Dermatology.

DR. R. WENDELL ROSS, family practitioner, is associated with Drs. Kemal Kutait, Ken E. Lilly, Ralph N. Ingram and Lawrence G. Pillstrom at 1120 Lexington in Fort Smith.

Dr. Ross is a native Arkansan and a graduate of the Ouachita Baptist University and the University of Arkansas College of Medicine. He interned at John Peter Smith Hospital in Fort Worth, Texas. Dr. Ross served in the United States Air Force from September 1969 to May 1972 with service in Vietnam.

Dr. Ross was in general practice in El Campo, Texas, from 1972 to 1976. He is board certified.

DR. JOHN J. WEISSE, general and vascular surgeon, was born in New York. He received M.D. and Ph.D. degrees from the State University

of New York, Downstate Medical Center, in 1972. He interned at Kings County Hospital in Brooklyn, New York, and had residency training at Barnes Hospital, St. Louis, Missouri, and the University of Missouri Medical Center in Columbia.

Dr. Weisse was biology teaching assistant at Iona College from 1963 to 1964 and instructor in surgery at the University of Missouri Medical Center from 1975 to 1976. He is a member of the Candidate Group, American College of Surgeons.

Dr. Weisse's office is located at 522 South 16th Street in Fort Smith.

DR. JOHN H. WIKMAN is a general surgeon with Holt-Krock Clinic at 1500 Dodson Avenue in Fort Smith. Prior to coming to Holt-Krock, Dr. Wikman was director of the Bangalore Baptist Hospital in Bangalore, India, from 1968 to 1975.

Dr. Wikman was born in Ann Arbor, Michigan, and attended the Ouachita Baptist College at Arkadelphia, receiving his Bachelor of Science degree in 1956. He graduated from the University of Arkansas Medical School in 1960 and completed his internship at Confederate Memorial Medical Center in Shreveport, Louisiana. After his residency at the University of Arkansas Medical Center, Dr. Wikman served in the Army Hospital in Fort Bliss, Texas, from 1961 to 1963.

Dr. Wikman is a member of the American College of Surgeons.

DR. JEFFREY M. NIEMANN, dermatologist, is a transfer member from Union County Medical Society. Dr. Niemann is a native of Indiana and graduated from the Indiana University School of Medicine in 1968. Dr. Niemann was a resident at the University of Arkansas Medical Center in Little Rock from 1972 to 1975. He was in private practice in El Dorado for one year prior to moving to Fort Smith. His office is located at 316 Lexington in Fort Smith.

DR. ANDREW E. DAVID, RESIDENT

The Pulaski County Medical Society has extended courtesy membership to Dr. Andrew E. David of Little Rock. He was born in San Francisco and attended the University of Arkansas College of Medicine where he received his M.D. degree. He is a second year resident in family practice.



OBITUARY

M. L. DALTON, M.D.

Dr. Marvin Lewis Dalton, Sr., 71, a practicing physician in Brinkley since 1933, died on January 20, 1977.

Dr. Dalton was born December 5, 1905, at Pocahontas. He was a graduate of the Arkansas University College of Medicine in 1932 and began his practice in Brinkley shortly thereafter.

Dr. Dalton was a life member of the Southern Medical Association and a member of the American Society of Abdominal Surgeons. He was the charter chief of staff of the Mercy Hospital in Brinkley. Dr. Dalton was named Brinkley's "Citizen of the Year" in 1972 by the Chamber of Commerce.

He is survived by his wife, Kathryn Dalton; three sons, Marvin L. Dalton, Jr., of Kerrville, Texas, David Deese Dalton of Midwest City, Oklahoma, and Charles Harding Dalton of Marianna; and a daughter, Mrs. Kathryn Ann Simmons of Rollo, Missouri.

WILLIAM O. YOUNG, M.D.

Dr. William O. Young, Little Rock psychiatrist, died December 29, 1976.

Dr. Young was born in Russellville on November 8, 1917. He was graduated from Arkansas Polytechnic College in 1935 and then attended the University of Arkansas College of Medicine. Dr. Young was a general practitioner at Russellville until 1953, when he left to attend the Menninger School of Psychiatry at Topeka, Kansas. He returned to Little Rock and began the practice of psychiatry.

Dr. Young was a member of the Southern Psychiatry Association and the American Psychiatry Association. He was the past chairman of the Arkansas Mental Health Association.

Dr. Young is survived by his wife, Mrs. Ann Williamson Young, and three sons, William O. Young, III, of Conway, Bruce Young and Kent Young of Little Rock.

G. W. SMILEY, M.D.

Dr. George W. Smiley, 60, of Lake Village, a general practitioner associated with the Lake Village Hospital and Clinic, died January 12, 1977.

Dr. Smiley had served as the resident physician for the State Correction Department from 1972 to 1974 and had been assistant medical director and director of the State Tuberculosis Sanatorium at Booneville from 1963 to 1972.

Dr. Smiley was a graduate of the Iowa State Medical School and had served as a medical officer in the Army during World War II.

Dr. Smiley is survived by his wife, Mrs. Mary V. Smiley, and two daughters, Julia Smiley of South Bend, Indiana, and Margaret Smiley of Fayetteville.



ANSWER—Electrocardiogram of the Month

Sinus rhythm at 75 per minute

PR = 0.16

QRS = 0.12

QT = 0.40

Left axis deviation and possible left anterior fascicular block. Abnormal loss of R waves V_3 to V_4 indicative of anterior infarction. Note the Vectorcardiogram in the horizontal plane (H) shows initial clockwise rotation, moving posteriorly. The arrow marked "2" is in the area of the loop that should be "out in front" instead of concave back.

Small Q waves in II, AVF suggesting possible inferior infarction which is confirmed by the frontal (F) plane vector. Here the arrows marked "1" and "2" are above the horizontal plane reflecting the lack of force directed downwards.



CONVENTION SECTION

Program For Annual Meeting

April 24-27, 1977

Little Rock Convention Center

Arkansas Medical Society

CONVENTION OFFICIALS

CHAIRMAN: Kenneth Lilly, M.D., Fort Smith

PROGRAM COMMITTEE:

Robert F. McCrary, M.D., Hot Springs
Frank M. Burton, M.D., Hot Springs
George H. Collier, Jr., M.D., Paragould
Charles A. Taylor, M.D., Batesville
Asa A. Crow, M.D., Paragould
Joseph Robinette, M.D., Pine Bluff
G. Thomas Jansen, M.D., Little Rock
Gilbert S. Campbell, M.D., Little Rock
W. F. Turner, M.D., Fort Smith

DISTRICT HOSTS: TENTH COUNCILOR DISTRICT

Kemal Kutait, M.D., Councilor
Charles F. Wilkins, Jr., M.D., Councilor

SCIENTIFIC EXHIBITS CHAIRMAN: J. Larry Lawson, M.D., Paragould

GOLF TOURNAMENT CHAIRMAN: W. Mage Honeycutt, M.D., Little Rock

TENNIS TOURNAMENT CHAIRMAN: Samuel W. Boellner, M.D.,
Little Rock

PRAYER BREAKFAST CHAIRMAN: C. Randolph Ellis, M.D., Malvern

CONTINUING MEDICAL EDUCATION CREDIT

The annual session program of the Arkansas Medical Society has been tentatively accredited for continuing medical education by the American Medical Association Council on Medical Education. We anticipate approval for 8½ hours Category I credit.

* * * * *

The annual session program of the Arkansas Medical Society has been approved for 10 hours prescribed credit by the Academy of Family Physicians.

General Information

REGISTRATION

The registration desk will be located and open for registration as follows:

Sunday,	April 24	Mezzanine of the Camelot Inn	8:00 a.m. to 5:00 p.m.
Monday,	April 25	Galerie 2, Convention Center	8:00 a.m. to 5:00 p.m.
Tuesday,	April 26	Galerie 2, Convention Center	8:00 a.m. to 5:00 p.m.
Wednesday,	April 27	Mezzanine of the Camelot Inn	8:00 a.m. to 12:00 Noon

Registration cards and badges will be prepared in advance for the officers of the Arkansas Medical Society and for the county society delegates. Delegates are requested to present credentials in proper form when registering.

All members and visitors are required to register, as admission to all sessions will be by badge only. Bring your 1977 membership card to facilitate registration.

There will be a \$5.00 registration fee for non-member physicians.

Tickets for the Tuesday night banquet may be purchased at the registration desk.

TELEPHONE SERVICE

As a convenience to physicians in attendance at the meeting, arrangements have been made for telephone service at the Society convention registration desk. It is suggested that you give the following information to your office personnel so that you may be contacted in case of emergency.

On Sunday and Wednesday, the Society staff may be reached through the Camelot Inn switchboard, 372-4371. Calls should be directed to the Medical Society convention registration desk.

Monday and Tuesday, the number for the society staff will be 375-7060.

GOLF TOURNAMENT

The annual golf tournament in connection with the convention will be played at the Rebsamen Municipal Golf Course April 24 through 26. There will be a \$5 registration fee. Scores will be determined by the Calaway System and prizes will be awarded.

Golf professional Paul Lewis will be in charge of the tournament. No tee times will be needed on Monday, April 25, or Tuesday, April 26, but you should call for tee time on Sunday, April 24.

TENNIS TOURNAMENT

The Arkansas Medical Society Tennis Tournament will be held at the Westside Tennis Club. Singles will be on Monday, April 25, and matches will be scheduled from 9:00 a.m. to 6:00 p.m. No entrance fee will be assessed, but participants must pay at court time at Westside and the loser pays for the tennis balls.

COUNCIL RECEPTION

The Council will hold a reception for all members, wives, and guests of the Arkansas Medical Society at 6:30 p.m. on Sunday, April 24, in the Golden

Knight room of the Camelot Inn. All members are encouraged to attend and become better acquainted with the officers of the Society.

ARKANSAS STATE BOARD OF HEALTH

The Arkansas State Board of Health will have a luncheon meeting at 12:00 noon on Monday, April 25, in the Camelot Inn.

MONDAY EVENING PARTY

Arkansas Blue Cross-Blue Shield will host a cocktail party for members of the Society and their wives at 6:30 p.m. on Monday, April 25, in the Camelot Inn.

PRAYER BREAKFAST

The Committee on Medicine and Religion will sponsor a Prayer Breakfast at 8:00 a.m. on Tuesday, April 26, for all physicians, wives, and widows of deceased members. Dr. John J. Schwab, Professor and Chairman of the Department of Psychiatry and Behavioral Sciences at the University of Louisville, will be the guest speaker. Tickets for the breakfast may be purchased at the Society registration desk.

MEMORIAL SERVICE

A joint Society-Auxiliary Memorial Service will be held on Tuesday, April 26, at 9:00 a.m. in the Black Knight Room in the Camelot Inn.

TUESDAY EVENING COCKTAIL PARTY

A cocktail party will precede the Inaugural Banquet on Tuesday evening, beginning at 6:00 p.m. in the Black-Silver Knight Rooms in the Camelot Inn.

PRESIDENT'S INAUGURAL BANQUET

The President's Inaugural Banquet will begin at 7:00 p.m. on Tuesday, April 26, in the Golden Knight Room of the Camelot Inn. A. S. Koenig, Jr., M.D., 1976-77 president, will be the master of ceremonies. The Northside High School Choir of Fort Smith, under the direction of Miss Edna Earle Massey, will provide the entertainment for the banquet.

Dr. W. Payton Kolb of Little Rock will be installed as president of the Society for 1977-78.

PAST PRESIDENTS' BREAKFAST

The traditional breakfast for former presidents of the Arkansas Medical Society will be held at 7:30 a.m. on Wednesday, April 27, in the Camelot Inn.

FIFTY YEAR CLUB BREAKFAST

The Society will host a breakfast for members of the Fifty Year Club at 7:30 a.m. on Wednesday, April 27, in the Camelot Inn. Members of the Fifty Year Club may make reservations for the breakfast at the Society's convention registration desk.

Dr. Curtis W. Jones of Benton is president of the Fifty Year Club and Dr. Eva F. Dodge of Little Rock is secretary.

Memorial Service

A joint Society-Auxiliary Memorial Service will be held at 9:00 a.m. on Tuesday, April 26, in the Black Knight Room of the Camelot Inn. President A. S. Koenig will preside.

IN MEMORIAM

SOCIETY MEMBERS

Dr. Rupert M. Blakely, Little Rock
Dr. Hoyt L. Choate, Little Rock
Dr. Henry A. Crane, Jr., Monticello
Dr. Marvin L. Dalton, Brinkley
Dr. Aurelius R. DeJanis,
North Little Rock
Dr. Hal R. Dildy, Little Rock

Dr. William A. Goodrum, Hot Springs
Dr. Alfred H. Hathcock, Batesville
Dr. Richard C. Petty, Star City
Dr. William L. Shippey, Fort Smith
Dr. Paul Sizemore, Magnolia
Dr. George W. Smiley, Lake Village
Dr. William O. Young, Little Rock

AUXILIARY MEMBERS

Mrs. J. D. Altman, Jonesboro
Mrs. W. J. Hunt, Shreveport, Louisiana
Mrs. Jack W. Kennedy, Hot Springs
Mrs. Everett C. Moulton, Sr.,
Fort Smith

Mrs. Bill Dave Stewart, Little Rock
Mrs. Joe Verser, Sr., Harrisburg
Mrs. Finis Q. Wyatt, Batesville



Scientific Exhibits

J. Larry Lawson, M. D., Chairman of the Scientific Exhibits, has arranged a number of interesting scientific exhibits. Exhibits will be located in the Convention Center.

Physicians interested in presenting scientific exhibits should contact Dr. Lawson at Post Office Box 6, Paragould, Arkansas 72450, telephone 501 239-4011.



Business Sessions

MEETINGS OF THE COUNCIL

The Council of the Arkansas Medical Society will meet as follows:

Sunday, April 24 10:00 a.m.

Monday, April 25 7:30 a.m.

Tuesday, April 26 7:00 a.m.

Wednesday, April 27 9:00 a.m.

Wednesday, April 27

Immediately following adjournment of the House of Delegates (brief re-organizational meeting and group photograph of new officers)

The voting members of the Council are: the councilors, the president, the first vice president, president-elect, secretary and treasurer. The speaker, vice speaker, and past presidents are members ex-officio without vote.

HOUSE OF DELEGATES

The opening session of the House of Delegates of the Arkansas Medical Society will begin at 1:00 p.m. on Sunday, April 24, in the Golden Knight Room of the Camelot Inn. Speaker of the House Amail Chudy, M.D., will be presiding.

All items of business to be considered by the House must either be printed in the March issue of the Journal or submitted to the headquarters office in writing twenty days prior to the meeting. Any new business proposed during the sessions of the House must have two-thirds vote of attending delegates for introduction.

Items of business will be referred by the Speaker of the House of Delegates to one of three reference committees. Open hearings on those items of business will be held by the reference committees following adjournment of the House. All members of the Society are welcome to attend the meetings of the reference committees and to express views on the various reports, resolutions, etc.

AGENDA

FIRST MEETING, HOUSE OF DELEGATES

1:00 p.m., Sunday, April 24

1. Call to Order
2. Roll Call of Delegates
3. Report of Credentials Committee
4. Introduction of Guests:
 - Mrs. Chester L. Young, President-elect of the American Medical Association Auxiliary
 - Mrs. Linus W. Hewit, President of the Auxiliary to the Southern Medical Association
 - Mrs. Carl L. Wilson, President, Arkansas Medical Society Auxiliary
 - Mrs. Kemal Kutait, President-elect, Arkansas Medical Society Auxiliary
5. Address by John H. Budd, M.D., Cleveland, Ohio, President-elect of the American Medical Association.
6. Address by A. S. Koenig, Jr., M.D., Fort Smith, President, Arkansas Medical Society.
7. Adoption of minutes of the 100th Annual Session as published in the June 1976 issue of the Journal of the Arkansas Medical Society.
8. Adoption of minutes of the special session of the House held November 14, 1976, as published in the January 1977 issue of the Journal of the Arkansas Medical Society.
9. Report from the Chairman of the Council, John P. Burge, M.D.
10. Reports of Committees
(Reports published in the March issue of the Journal may be amended by committee chairmen. All reports will be referred to the reference committees.)
11. Old Business
12. New Business
(No resolutions were received by the headquarters office by publication date.)

13. Announcements of Vacancies on State Boards
14. Selection of Society Nominating Committee for 1977-78 Society Officers
(Councilor district meetings are held on floor of the House for selection of representative from each district for the Nominating Committee.)
15. Adjournment

A G E N D A

FINAL MEETING, HOUSE OF DELEGATES

10:00 a.m., Wednesday, April 27

1. Call to Order
2. Report of the Nominating Committee
3. Elections

Society Officers:

President-elect
First Vice President
Second Vice President
Third Vice President
Treasurer
Secretary
Speaker of the House of Delegates
Vice Speaker of the House of Delegates
Councilors (one from each of the ten councilor districts)

Councilors whose terms expire are:

1. Eldon Fairley, M.D., Osceola
2. Paul Gray, M.D., Batesville
3. Fred C. Inman, Jr., M.D., Carlisle
4. Raymond Irwin, M.D., Pine Bluff
5. John H. Moore, M.D., El Dorado
6. A. E. Andrews, M.D., Texarkana
7. Curtis B. Clark, M.D., Sheridan
8. W. Ray Jouett, M.D., Little Rock
9. Morriss M. Henry, M.D., Fayetteville
10. Charles F. Wilkins, M.D., Russellville

American Medical Association Delegate and Alternate:

Delegate to the American Medical Association (term of Purcell Smith, M.D., Little Rock, expires December 31, 1977)

Alternate Delegate to the American Medical Association (term of T. E. Townsend, M.D., Pine Bluff, expires December 31, 1977)

Vacancies on the State Boards

State Medical Board:

Term of Hugh R. Edwards, M.D., Searcy, Second Congressional District, expires December 31, 1977.

4. Reports of Reference Committees:
 - Committee No. 1: Mahlon O. Maris, M.D., Chairman
 - Committee No. 2: Boyce W. West, M.D., Chairman
 - Committee No. 3: John M. Hestir, M.D., Chairman
5. Supplemental Report of the Council: John P. Burge, M.D., Chairman
6. New Business
7. Adjournment

REFERENCE COMMITTEES

Reference Committees are appointed by the Speaker of the House of Delegates to consider the various reports and resolutions. Reports published in the March issue of the Journal, as well as any reports and resolutions presented at the first meeting of the House on April 24, will be referred by the Speaker to the reference committees. The committees will hold open hearings at 3:30 p.m. on Sunday, April 24, to give all members an opportunity to present their views on the various items of business. Following the open hearings, the reference committees will hold executive sessions for the purpose of preparing recommendations and reports for the House of Delegates. Reports of the Reference Committees will be acted upon by the House at the Wednesday session.

Members of the Reference Committees are:

Reference Committee Number 1:

Mahlon O. Maris, M.D., Harrison, Chairman

Paul Cornell, M.D., Little Rock

A. E. Andrews, M.D., Texarkana

James Robinette, M.D., Jonesboro

Observer: Mr. Carl Fincher, President of the Senior Class, University of Arkansas College of Medicine

Reference Committee Number 2:

Boyce W. West, M.D., Clarksville, Chairman

William N. Jones, M.D., Little Rock

John H. Moore, M.D., El Dorado

Thomas E. Townsend, M.D., Pine Bluff

Observer: Mr. Leonard Kemp, President of the Junior Class, University of Arkansas College of Medicine

Reference Committee Number 3:

John M. Hestir, M.D., DeWitt, Chairman

Philip J. Deer, Jr., M.D., Little Rock

W. P. Phillips, M.D., Fort Smith

John E. Bell, M.D., Searcy

Observer: Mr. Allen Lucas, President of the Sophomore Class, University of Arkansas College of Medicine

STATE BOARD VACANCIES

Arkansas State Medical Board

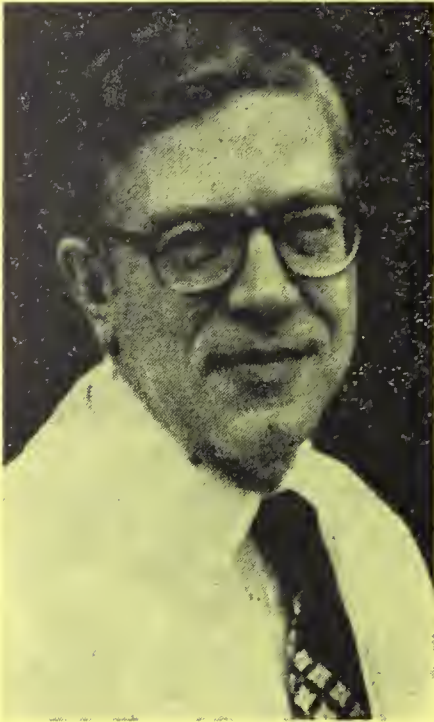
A vacancy occurs in the Second Congressional District position on the Arkansas State Medical Board. Members from the counties in the district are urged to meet immediately following adjournment of the House of Delegates meeting on Sunday to vote for nominees. Nominations should be reported to the convention registration desk (only one nominee required). Hugh R. Edwards, M.D., of Searcy is currently serving a term which expires December 31, 1977, and he is eligible for reappointment. Counties in the Second Congressional District are: Cleburne, Fulton, Independence, Izard, Jackson, Lawrence, Monroe, Prairie, Randolph, Sharp, Stone, White, and Woodruff.

ARKANSAS FOUNDATION FOR MEDICAL CARE

The Arkansas Foundation for Medical Care will meet on Wednesday, April 27, immediately following the re-organizational meeting of the Council of the Arkansas Medical Society. The Foundation meeting will be held in the Golden Knight Room in the Camelot Inn. The Foundation meeting is open to all physicians but only members of the Foundation may vote on items of business.



Distinguished Guest Speakers



JOHN J. SCHWAB, M.D.
Professor and Chairman
Department of Psychiatry and
Behavioral Sciences
University of Louisville
Health Sciences Center
Louisville, Kentucky



CHARLES E. REED, M.D.
Professor of Medicine
University of Wisconsin
Center for Health Sciences
Madison, Wisconsin



JOHN H. BUDD, M.D.
President-elect
American Medical Association
Cleveland, Ohio

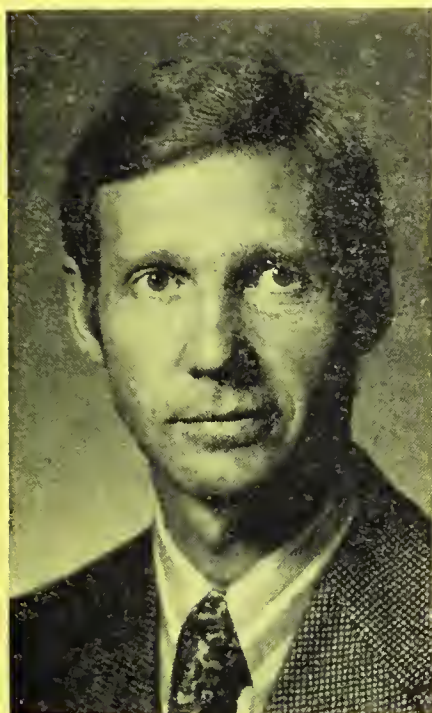
PICTURE
NOT
AVAILABLE

RAYMOND T. MORRISSY, M.D.
Head, Section of Children's Orthopaedics
University of Arkansas
College of Medicine
Little Rock

PICTURE
NOT
AVAILABLE

JAMES T. BLACKMON, M.D.
Arkadelphia

Distinguished Guest Speakers



ROBERT E. RAKEL, M.D.
Professor and Head
Department of Family Practice
University of Iowa College of Medicine
Iowa City, Iowa

PICTURE
NOT
AVAILABLE

CHARLES NORRIS, M.D.
Assistant Professor
Department of Otolaryngology
University of Kansas School of Medicine
Kansas City, Kansas



NOEL W. LAWSON, M.D.
Associate Professor
Department of Anesthesiology
University of Arkansas
College of Medicine
Little Rock



W. P. PHILLIPS, M.D.
Fort Smith
Assistant Clinical Professor of Obstetrics
and Gynecology (AHEC)
University of Arkansas
College of Medicine

PICTURE
NOT
AVAILABLE

J. MARTIN LIPKE, M.D.
Department of Orthopaedic Surgery
Veterans Administration Hospital
Little Rock



JON A. VANDERHOOF, M.D.
Assistant Professor of Pediatrics
University of Nebraska Medical Center
Omaha, Nebraska

Scientific Program

GENERAL SESSION

ARKANSAS MEDICAL SOCIETY

PROGRAM THEME: *"Common Problems for Rural Physicians"*

Monday Morning, April 25

Presiding: Mahlon O. Maris, M.D., Harrison, First Vice President

- 9:00-10:00 Noel Lawson, M.D., Associate Professor, Department of Anesthesiology, University of Arkansas College of Medicine
"Recent Advances in Monitoring of the Critically Ill and Injured"
- 10:00-10:45 Robert Rakel, M.D., Professor and Head, Department of Family Practice, University of Iowa College of Medicine, Iowa City
"Is the Annual Physical Worthless"
- 10:45-11:00 INTERMISSION — Visit the Exhibits
- 11:00-12:00 Charles E. Reed, M.D., Professor of Medicine and Director, Allergic Disease Center, University of Wisconsin Center for Health Sciences, Madison
"Management of Asthma"

Monday Afternoon

Presiding: Boyce W. West, M.D., Clarksville, Second Vice President

- 1:30- 2:30 John J. Schwab, M.D., Professor and Chairman, Department of Psychiatry and Behavioral Sciences, University of Louisville Health Sciences Center, Louisville, Kentucky
"Emotional Reactions to Physical Illness"
- 2:30- 3:15 W. P. Phillips, M.D., Fort Smith, Assistant Clinical Professor of Obstetrics and Gynecology (AHEC), University of Arkansas College of Medicine
"Office Gynecology"
- 3:15- 3:30 INTERMISSION — Visit the Exhibits
- 3:30- 4:00 J. Martin Lipke, M.D., Department of Orthopaedic Surgery, Veterans Administration Hospital, Little Rock
"Sprained Ankles"
- 4:00- 4:30 Raymond T. Morrissy, M.D., Head, Section of Children's Orthopaedics, University of Arkansas College of Medicine, Little Rock
"Limping Child"
- 4:30- 5:00 Alan Mandell, Memphis, Tennessee
"Glaucoma"

Tuesday Morning, April 26

Presiding: John M. Hestir, M.D., DeWitt, Third Vice President

- 9:45-10:30 James T. Blackmon, M.D., Arkadelphia
"Pre-Hospital Care in a Rural Area"
- 10:30-11:30 Jon A. Vanderhoof, M.D., Assistant Professor of Pediatrics, University of Nebraska Medical Center, Omaha
"Common Problems in Pediatric Gastroenterology"
- 11:30-12:00 Charles Norris, M.D., Assistant Professor, Department of Otolaryngology, University of Kansas School of Medicine, Kansas City

Group and Specialty Meetings

Monday, April 25

The *Alan Cazort Allergy Society of Arkansas* will meet at 12:00 noon on Monday, April 25, for a Dutch treat luncheon and business meeting in the Camelot Inn. Dr. Charles E. Reed, Professor of Medicine and Director of the Allergic Disease Center, University of Wisconsin Center for Health Sciences, Madison, Wisconsin, will speak on "Viral Respiratory Infections and Asthma."

Tuesday, April 26

The *Ophthalmology Section, Arkansas Medical Society*, will meet for a scientific program beginning at 9:00 a.m. on Tuesday, April 26, in the Camelot Inn. A luncheon and business meeting will follow the program. Dr. Alan Mandell of Memphis, Tennessee, will speak on the subject of glaucoma.

The *Arkansas Chapter, American College of Radiology*, will meet at 10:00 a.m. on Tuesday, April 26, in the Camelot Inn. The schedule for the day is as follows:

- 10:00 a.m. "Clinical Application of Myocardial Imaging with Thallium," Charles Boyd, M.D.
- 10:30 a.m. "Abdominal Ultrasonography," Donald Herzberg, M.D.
- 11:30 a.m. Cocktails
- 12:00 noon Lunch
- 2:00-3:00 p.m. Business Meeting

Internal Medicine. There will be a luncheon meeting sponsored by the Arkansas Society of Internal Medicine. All interested physicians are invited to attend. A short business meeting of the Society of Internal Medicine will be held with Dr. McDonald Poe, president, presiding.

A scientific program following lunch will be sponsored by the Department of Continuing Education of the University of Arkansas College of Medicine on subjects in Internal Medicine. Category I credit will be given for the scientific program.

The *Neurosurgery Section, Arkansas Medical Society*, will hold a luncheon-business meeting on Tuesday, April 26, beginning at 12:00 noon in the Camelot Inn.

The *Otolaryngology Section, Arkansas Medical Society*, has scheduled a 12:00 noon luncheon in the Camelot Inn on Tuesday, April 26. Guest speaker will be Dr. Charles Norris, Assistant Professor, Department of Otolaryngology, University of Kansas School of Medicine, Kansas City, Kansas.

The *Arkansas Society of Urologists* will meet at 12:00 noon for a luncheon, business meeting, and Pyelogram Conference on Tuesday, April 26, in the Camelot Inn.

The *Arkansas Academy of Family Physicians* will meet at 12:30 p.m. on Tuesday, April 26, in the Camelot Inn. Dr. Robert E. Rakel, Professor and Head, Department of Family Practice, University of Iowa College of Medicine, Iowa City, Iowa, will speak on "Certification and Recertification by the American Board of Family Practice." This program is approved for two prescribed hours by the American Academy of Family Physicians.

The *Arkansas Orthopaedic Society* will meet at 12:15 p.m. on Tuesday, April 26, for a business meeting and luncheon at the Camelot Inn.

The *Arkansas Society of Pathologists* will meet for a 12:30 p.m. luncheon followed by a business meeting on Tuesday, April 26, in the Camelot Inn. Guest speaker will be Dr. Sanford I. Roth, Professor and Chairman, Department of Pathology, University of Arkansas College of Medicine, who will speak on "Osteomalacia, Osteoporosis, and Hyperparathyroidism."

The *Arkansas Academy of Pediatrics* will have a luncheon meeting on Tuesday, April 26, at 12:30 p.m. in the Camelot Inn. Dr. Jon A. Vanderhoof, Assistant Professor of Pediatrics, University of Nebraska Medical Center, Omaha, Nebraska, will be the guest speaker. Dr. Vanderhoof will speak on "Advances in Pediatric Cardiology."

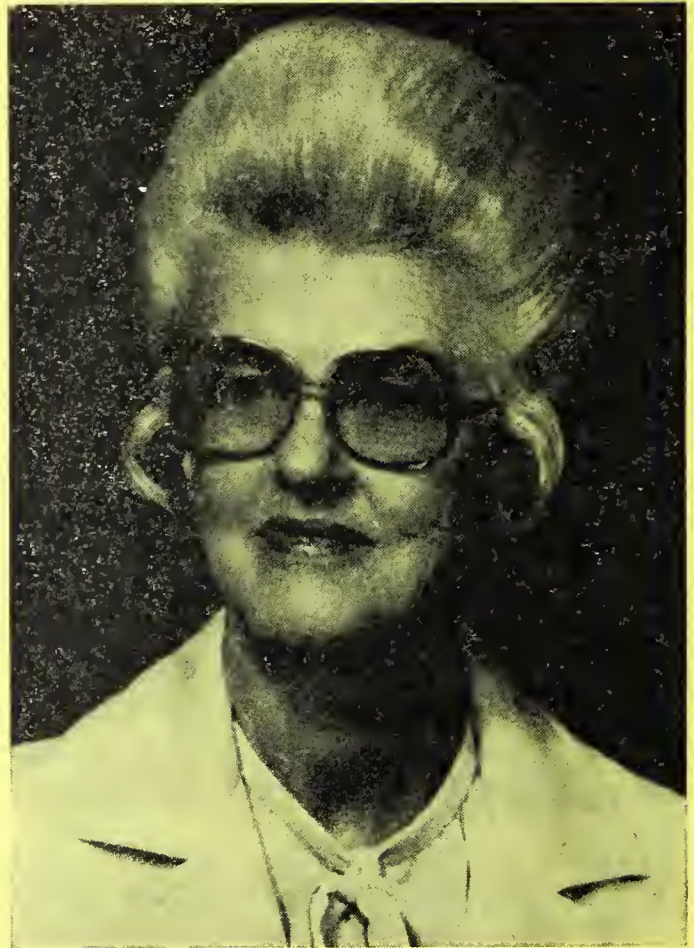
Arkansas Society of Anesthesiologists will hold a luncheon, program, and short business meeting on Tuesday, April 26, beginning at 12:30 p.m. in the Camelot Inn. Guest speaker will be Dr. John Brunner, Assistant Professor, Department of Anesthesiology, University of Arkansas College of Medicine. Dr. Brunner will speak on "Complications of Massive Blood Transfusions."



Auxiliary Guests



MRS. LINUS W. HEWIT
President
Woman's Auxiliary to the
Southern Medical Association
Tampa, Florida



MRS. CHESTER L. YOUNG
President-elect
American Medical Association Auxiliary
Kansas City, Kansas

Arkansas Medical Society Auxiliary

The 53rd Annual Session of the Arkansas Medical Society Auxiliary will be held April 24-26, 1977, in the Camelot Inn, Little Rock.

The following is an outline of the tentative convention schedule:

Registration hours, Mezzanine, Camelot Inn

Sunday	1:30 p.m. to 4:00 p.m.
Monday	8:00 a.m. to 12:00 noon 3:00 p.m. to 4:00 p.m.
Tuesday	8:00 a.m. to 10:00 a.m.

TICKETS

Tickets for luncheons will be sold at the registration desk.

AMA-ERF

Booth will be open near the registration desk.

SUNDAY, APRIL 24

- 2:00 p.m. Pre-Convention State Board Meeting, President's Suite, #601.
Joint meeting with president-elect for state officers, committee chairmen, county presidents, county presidents-elect, and *all new* State Board members.
- 6:30 p.m. Council reception for all members of the Society and Auxiliary

MONDAY, APRIL 25

- 8:00 a.m. Past Presidents' Breakfast
- 9:00 a.m. Coffee Time — Golden Knight Room
- 9:30 a.m. Opening General Session, Golden Knight Room
Mrs. Carl L. Wilson, presiding
- 12:30 p.m. Luncheon and Hospitality at the Little Rock Club, Union National Bank Building
Guest Speaker: Mrs. Chester L. Young, President-elect, American Medical Association Auxiliary
- 6:30 p.m. Cocktail Party hosted by Arkansas Blue Cross-Blue Shield

TUESDAY, APRIL 26

- 8:00 a.m. Prayer Breakfast for members of the Arkansas Medical Society and Auxiliary
- 9:00 a.m. Joint Memorial Service with the Arkansas Medical Society
- 9:45 a.m. Coffee Time — Golden Knight Room
- 10:00 a.m. Second General Session, Golden Knight Room
Mrs. Carl L. Wilson, presiding
- 12:30 p.m. Hospitality Time and Luncheon, The Country Club of Little Rock (transportation furnished)
Hostesses: Sebastian County Auxiliary, Mrs. Kenneth K. Wallace, president
Greetings from the Auxiliary to the Southern Medical Association:
Mrs. Linus W. Hewit, president
Installation of Officers
- 6:00 p.m. Social Hour
- 7:00 p.m. Arkansas Medical Society Inaugural Banquet

There will be DOOR PRIZES each day furnished by the County Auxiliaries, a style show during luncheon Monday by Barbara Jean, Ltd., and surprise entertainment by our own from throughout the State. Buy your luncheon tickets early!

Technical Exhibits

The business firms who purchase exhibit space at our Annual Session contribute a great deal to the financing, as well as to the educational aspects, of the meeting. The number of visits to the technical exhibits is the only criterion by which these companies can judge the value they receive from the investment in booth rental, displays and employees' time. You will be rewarded for the time you spend visiting the exhibits. Following are descriptions of displays to be featured.

STUART PHARMACEUTICALS

Stuart Pharmaceuticals welcomes members and guests to the Arkansas Medical Society Annual Session. We extend a cordial invitation to visit our exhibit featuring displays and literature for our major products: "MYLANTA/MYLANTA-II," "MYLICON-80," "DIALOSE/DIALOSE PLUS," "EFFERSYLLIUM," "KINESED" and "SORBITRATE" (isosorbide dinitrate).

Our representatives will be glad to answer any questions on STUART products and accept sample requests.

ARKANSAS BLUE CROSS-BLUE SHIELD

Arkansas Blue Cross and Blue Shield cordially invites you to visit our booth where our representatives will be happy to discuss any of the programs we administer.

Currently, there are approximately 606,666 Arkansans enrolled in Arkansas Blue Cross and Blue Shield and we welcome the opportunity to serve you.

ENCYCLOPAEDIA BRITANNICA

Encyclopaedia Britannica welcomes members and guests to the Arkansas Medical Society Convention.

As part of our exhibit, we will have on display the revolutionary new Encyclopaedia Britannica 3, The Britannica Junior, Great Books of the Western World and other related products.

Stop and inspect our products, they are available to the members and guests at the exhibit offer.

HOECHST PHARMACEUTICAL COMPANY

The representatives at the Hoechst booth will be happy to discuss their products with particular application to the physician's individual practice. Featured will be Lasix, Surfak and Doxidan.

SMITH KLINE & FRENCH LABORATORIES

Representatives will be on hand to answer your specific questions and provide information on their products and services.

WILLIAM T. STOVER CO., INC.

The Stover Co. will be displaying the latest in medical equipment and supplies at the coming Annual Session. Some of the items that we will be showing will be the Space-labs Monitoring Equipment, Welch-Allyn Diagnostic Equipment, and other new items that have recently come on the market in the medical equipment and supply field.

ORTHO PHARMACEUTICAL CORPORATION

Ortho Pharmaceutical Corporation is proud to present the most complete line of medically accepted products

for the control of conception. Also on display will be our well-known products for the treatment of vaginitis.

AYERST LABORATORIES

Our representatives look forward to a visit with you, and for the opportunity to discuss the Ayerst products and services of interest to you.

ROCHE LABORATORIES

Roche Laboratories of Nutley, New Jersey, invites the members to visit with their representative at their booth.

BAKER & TAYLOR EDUCATIONAL PRODUCTS

Training and communication in the medical profession will be emphasized at the Baker & Taylor Educational Products exhibit. SONY and SHARP COLOR VIDEO SYSTEMS will be on display, along with special support equipment. Physicians are invited to see basic video tape production with the latest studio and portable color cameras.

The versatility of the 35 mm film format will also be demonstrated with sync/film and slide viewers by SINGER, including a new version of the SINGER CARAMATE.

PROFESSIONAL PRACTICE CONSULTANTS

Available at our booth will be the practice test which will allow each doctor to test his practice, in order to see how it compares, and to pinpoint areas that need improvement within his practice, administration and management. There will be current statistics on the different types of medical practice, their incomes and expenses. An experienced consultant will be available to discuss individual problems.

UAD LABORATORIES, INC.

UAD LABORATORIES, INC., will be showing the following products at the Arkansas Medical Society Convention on April 24-27:

ENDAL TABLETS — Nasal Decongestant/Expectorant

LORCET TABLETS — Analgesic

VERTAB CAPSULES — Vertigo

BRISTOL LABORATORIES

You are cordially invited to visit Bristol Laboratories' exhibit. Our representatives at the booth welcome the opportunity to answer your questions concerning the Bristol line of products featuring: CEFADYL® (sterile cephalixin sodium); KANTREX® INJECTION (kanamycin sulfate injection); TEGOPEN® (sodium cloxacillin); TETREX® (tetracycline phosphate complex); PRO-STAPHLIN® (sodium oxacillin); SALUTENSIN® (hydroflumethiazide and reserpine); NALDECON® (antihistamine decongestant); POLYMOX® (amoxicillin); POLY-CILLIN® (ampicillin); and the newest Bristol product, AMIKIN™ (amikacin sulfate).

E. R. SQUIBB & SONS, INC.

E. R. Squibb & Sons, Inc., has long been a leader in the development of new therapeutic agents and equipment for the prevention and treatment of disease. You are cordially invited to meet our pharmaceutical representatives who will be available at our exhibit to discuss our

full line of products, which will include our VELOSEF and HALOG.

NORTHWESTERN NATIONAL LIFE INSURANCE COMPANY

Information available regarding the Arkansas Medical Society Life Insurance Plan administered by Meyer F. Marks, Inc. Amount of insurance now has a limit of \$200,000. Also, information available on Professional Associations.

MID-CONTINENT LEASING COMPANY, INC.

The Mid-Continent Leasing booth will feature brochures explaining the aspects of equipment leasing, along with a continuous slide presentation depicting the many types of equipment available through leasing. Members of the Society are invited to visit with us.

REYNOLDS SECURITIES INC.

Reynolds Securities' exhibit will include literature relative to a complete line of investments for individuals and corporations including corporate bonds, tax-free bonds, mutual funds, government securities and options.

DODSON INSURANCE GROUP

Underwriters of the Savings Plan for Workers' Compensation Insurance approved by Arkansas Medical Society as a proven way to reduce the cost when claims are held to a minimum through safety. Returns of 30% and 35% have been paid in three of the past four years to participating physicians in Arkansas. Policies are standard in all respects and are issued at approved rates. Savings are paid as earned within about 90 days after policy expiration.

PITNEY-BOWES, INC.

The Pitney-Bowes booth will feature a fast statement billing system for ledger card billing; the Pitney-Bowes plain paper copiers; folding, inserting and mailing equipment.

FIRST VARIABLE LIFE INSURANCE COMPANY

A SHORT LESSON ON CUTTING INCOME TAXES!

- * Deferred Compensation — Exclusive IRS Advance Revenue Letter Ruling
- * Qualified Pension and Profit Sharing Plans
Is it really worthwhile to incorporate?
- * Tax Deferred Programs

RUCKER PHARMACAL COMPANY, INC.

Rucker Pharmacal Company, Inc., will display drugs from their cardiovascular, cough, cold, and respiratory products lines. All members are invited to visit the booth and discuss these products with the Rucker representatives.

PROFESSIONAL SERVICES OF AMERICA, INC.

Professional Services of America is a data processing firm specializing in accounts receivable, billing service for the medical industry. The computerized service offers many management reports providing a wealth of information to the physician as well as producing the regular statements and insurance forms for the practice.

Our display will consist of samples of the forms and statements which are produced. We will also display a

remote data terminal to allow the physician or his office to transmit information to the main computer by telephone.

PARKE, DAVIS & COMPANY

You are cordially invited to visit the Parke-Davis booth where medical service representatives will be available to discuss products especially selected to assist you in the practice of your profession.

RATHER, BEYER & HARPER

Representatives of Rather, Beyer & Harper will have brochures and all information on the Arkansas Medical Society's Group Insurance Plans. The Income Protection Plan which has been in effect since 1947 is now being issued on a guaranteed renewable basis. We ask that each physician check with us on the prospective changes in his Overhead Expense Plan. Records will be available so that each physician may review his insurance coverages and what he is eligible to apply for as a member of the Arkansas Medical Society.

DEPARTMENT OF THE AIR FORCE

Our display will consist of a simple pictorial background showing Air Force medical personnel at work on the job. The Air Force's main goal is to discuss the advantages of an Air Force Medical Career. There will be literature to illustrate our programs.

INTERNATIONAL BUSINESS MACHINES

The IBM Corporation will sponsor an exhibit featuring the most advanced office equipment technology. H. J. Didier and Annette Barden, representatives of the Office Products Division, will demonstrate the IBM Correcting Selectric Typewriter, the IBM 6:5 Cartridge System and the IBM Memory Typewriter.

DOMELABORATORIES

A cordial invitation is extended to all the members of the Society to visit with Dome representatives and discuss products of interest. In addition to the dermatology products, Decholin (for relief of constipation), our diagnostic kit for the testing and management of allergy patients, and our Unna boot (Dome past bandage) for varicose and stasis ulcers and edema, will all be on display.

D. A. SPARKS, INC.

The Control-O-Fax pegboard system will be on display and demonstrated by the representatives of the D. A. Sparks company. It will help a professional office from time management (appointment book) through collections. The main emphasis with our pegboard system is accounts receivable. Our accounts receivable gives faster collections, cuts the paperwork in half, more accurate records, and now does the insurance claims for the Doctor.

The latest in the 3M copy machine division will also be presented.

NATIONAL MEDICAL RENTALS, INC.

On display will be durable medical equipment a physician would order for a patient at home, such as respiratory therapy equipment, oxygen, wheelchair, etc.

A. H. ROBINS COMPANY, INC.

You are cordially invited to visit the A. H. Robins exhibit and meet our representatives who will welcome the opportunity to discuss products of interest to you.

SAFEGUARD BUSINESS SYSTEMS OF ARKANSAS

Safeguard Business Systems of Arkansas will display "ONE WRITE" collecting system, trays and equipment, and samples of financial reports.

SANDOZ PHARMACEUTICALS

Sandoz Pharmaceuticals cordially invites you to visit our display at booth #34, where we are featuring MELLARIL, HYDERGINE and SANOREX.

Any of our representatives in attendance will gladly answer questions about these and other Sandoz products.

WILLIAM P. POYTHRESS & COMPANY, INC.

William P. Poythress and Company, Inc., manufacturers of ethical pharmaceuticals for one hundred and twenty years, cordially invites you to visit our exhibit where our representative, "Bru" Brubaker, will be glad to discuss any Poythress products.

CUMMINGS X-RAY COMPANY

We plan to display the 3 channel ECG, Filmamatic Processor, VS4 EKG, Mettler Ultra Sound & Stimulator w/stand, and the Fischer Control.

TAB PRODUCTS COMPANY

TAB PRODUCTS is a national company that is the leader in lateral filing systems of all types and we will be highlighting our lateral filing equipment and color coded systems for medical records.

MALLINCKRODT, INCORPORATED

You are invited to stop by the Mallinckrodt display to discuss our unique and complete line of antihypertensive, bronchodilator, and cough-allergy products.

JOHNSON & JOHNSON

The Johnson and Johnson booth will feature products of the Dermatologic Division. Members are invited to visit the booth and discuss the Dermatologic line of products with representatives present.

MARION LABORATORIES, INC.

Let us introduce you to the most recent product in our nitroglycerin family — NITRO-BID® (nitroglycerin 2%) Ointment. Let us show you how the specially designed applicator helps your patient apply the ointment safely and accurately. We'll explain how you can use NITRO-BID Ointment as an adjunct in treating patients with angina pectoris.



House of Delegates Business Affairs

Reports printed below are brought to the attention of individual members and the county medical societies. The items reported here represent those received in time for publication in advance of the meeting. All reports will be referred to reference committees. Members are urged to attend the open hearings of the reference committees to express their views. Reference committee hearings are scheduled for 3:30 p.m. on Sunday, April 24.

ANNUAL COMMITTEE REPORTS

Committee on Public Health (Rural Health)

Ben N. Saltzman, M.D., Chairman

The Committee has been fairly active this year in the development of the Ninth Arkansas Rural Health Conference. Following several meetings with Dr. Runyan Deere of the Arkansas Cooperative Extension Service, the Conference was held May 28, 1976, at the Camelot Inn in Little Rock. It was very successful with an attendance of approximately six hundred people. Included in the attendance figures were physicians, nurses, health workers, health planners, and the leader-

ship of some fifty-six counties over the State. The Chairman presided and spoke to the conference. The title of his talk was "Do It Yourself." Other activities of the Chairman for the year, beginning in April, consisted of the following:

April 8-9 — Moderator of a panel on "Medical School Outreach" at the National Rural Health Conference in Phoenix, Arizona.

May 1, 1976 — Speaker at the Rural Health Program held in Marianna, Arkansas.

May 20, 1976 — Speaker to a meeting of the Arkansas Health Planners' Association on "Rural Practice Development Programs" in El Dorado, Arkansas.

Elected to the Board of Directors of the Arkansas 4-H Foundation.

July 15, 1976 — Speaker to the Conference on Rural America. Title, "Community Organization for Rural Health Services." The meeting was held in Crookston, Minnesota.

August 10, 1976 — The Chairman presented the Arkansas Medical Society Health Award to the State winner in the 4-H O'rama in Conway, Arkansas.

October 10-12 — Attended the Southern Rural Health Conference in Nashville, Tennessee.

November 2, 1976 — Spoke to the Augusta, Arkansas, Rotary Club on Rural Medical Practice Development Programs.

December 9, 1976 — Served as a resource person at the Governor's Conference on Health Manpower Planning in Little Rock. The workshop concerned rural health care delivery.

The Chairman serves as President of the State Board of Health and is in constant touch with public health matters in the State. He has also been asked to serve as a speaker at the National Rural Health Conference to be held in Seattle, Washington, March 30th through April 1st. The members of the Committee have been active in supporting rural health programs which involve the College of Medicine.

Sub-Committee on Tuberculosis

Donald L. Miller, M.D., Chairman

The progress and development in Arkansas in the area of management of patients with tuberculosis in recent years is well known. The establishment and operation of the network of outpatient clinics through the Health Department, plus use of various general hospitals in the State for necessary admissions, has made Arkansas a leader in this field. The Division of Communicable Diseases of the Arkansas Department of Health, under the direction of Dr. William W. Stead, continues to supervise the operation of the Tuberculosis Program in a desirable and effective manner. Information and consultation is thus available to individual physicians and, in addition, semi-annual tuberculosis symposia are being held under the joint sponsorship of the State Health Department, the Arkansas Lung Association, and the University of Arkansas College of Medicine. Our State, and its physicians, can justifiably be quite proud of the continuing accomplishments of the overall tuberculosis program.

The Committee would like to recommend that the State Health Department consider a publication to be made available to practicing and other interested physicians. This publication could be revised annually, or as seems necessary, and should inform the practitioner of the State Health Department policies in regard to diagnosis and treatment of tuberculosis, atypical mycobacterial infections, fungus infections, and

sarcoidosis. It should also include policies regarding skin testing and use of Isoniazid prophylactically. Information on most of these matters has been available to physicians for some time; however, the committee felt that an information booklet, such as that described above, would be most helpful.

Committee on Mental Health

W. Payton Kolb, M.D., Chairman

The Committee on Mental Health has no specific recommendation to make at this time other than the continuation of the recommendations of last year. The gathering of information regarding the question of the "Impaired Physician" has continued. It is anticipated specific recommendations will be forthcoming in the future.

Information, at this time, indicates there are no basic changes needed in the State Licensing Law. It is anticipated recommendations will be made in the future regarding plans for better case finding and fact finding with a plan that will coincide with the work of the board. Much credit should be given to the board for its work in this area.

Conferences and workshops with representatives from other states have revealed the importance of maintaining a non-political licensing board. States where the medical society has no input into the appointments to the board have found they have distinct problems in the area of using the board for helping the Impaired Physician or helping the public.

Several plans have been studied and are being studied to increase the efficiency of the solution of this problem.

This Committee continues to encourage all physicians to keep in mind the importance that as governmental agencies become more and more involved in the practice of medicine the individual with mental or emotional illness will not have to depend on a regressed treatment program going back to where it was several years ago.

Sub-Committee on

Liaison with Vocational Rehabilitation

John P. Wood, M.D., Chairman

Our committee has had an excellent relationship with the Department of Social and Rehabilitative Services this past year.

There have been some changes in the program provided through the Rehabilitation Services.

States participating in the State-Federal program of vocational rehabilitation are now mandated by Congress to give priority to servicing the severely handicapped. This has opened up new approaches to the provision of physical restoration services.

The Federal Rehabilitation Act defines a severely handicapped individual as one with a disability that requires multiple services over an extended period of time. The disability may result from an amputation, blindness, cancer, cerebral palsy, cystic fibrosis, deafness, heart disease, hemiplegia, mental illness, multiple sclerosis, neurological disorders (including stroke and epilepsy), paraplegia and spinal pulmonary dysfunction, and any other disability specified by the Secretary in regulations he shall prescribe. Kidney disease is another disability which comes under the definition.

The mandate to serve the severely handicapped has led to an upsurge in physical restoration procedures previously seldom authorized by rehabilitation agencies. The procedures include open heart surgery, Harrington Rod Technique, orthotic applications, phacoemulsification procedure, lens transplant following cataract surgery, and, within limitations, plastic surgery.

Arkansas' Division of Rehabilitation Services, Department of Social and Rehabilitative Services, is in step with the trend mandated by Congress. Approximately 50 percent of its annual allotment of case services funds goes for physical restoration services. This amounted to over \$2.5 million in 1975-76.

The concern for the health of the individuals the Division and its agencies serve begins with the preliminary diagnostic examination. The examination determines the individual's eligibility for additional services and sets the stage for further examinations and medical consultations that may be necessary for his vocational rehabilitation.

The procedures involve local practitioners and medical consultants, the Division's chief medical consultant, specialists, and facility staff physicians.

It should be pointed out that individuals accepted for rehabilitation services are carefully considered as to their vocational rehabilitation potential. And, the individual has the right to choose his own physician.

Disabilities Served

There is a wide range of disabilities which might make individuals eligible for rehabilitation services. Those with conditions of blindness constitute the largest number under physical disabilities. In 1975-76 the Office for the Blind and Visually Impaired served 1,661 individuals. Second to blindness in the number served under physical disabilities are those with orthopedic deformities, or functional impairments except amputations. Of the 4,902 persons rehabilitated, 642 had orthopedic conditions such as accident injuries, congenital malfunctions, arthritis and rheumatism, poliomyelitis, etc.

Serving the Severely Handicapped

Persons with spinal cord conditions have received services throughout the 50-year history of Arkansas' rehabilitation program. Now, with the requirement of priority to the severely handicapped, services to such individuals are being intensified within fiscal limitations. The Rehabilitation Services has a staff of counselors assigned to Central Baptist Hospital to handle spinal cord referrals. In addition, the Division works with the State Spinal Cord Commission in its efforts to establish a statewide quality care treatment program for persons with spinal cord conditions.

The Arkansas Kidney Disease Commission is another agency of the Rehabilitation Services. The Commission's membership includes four physicians who have knowledge of renal diseases and treatment.

In 1975-76 the Commission used its \$295,000 state appropriation for the treatment and care of 160 cases of end stage renal disease, and 16 transplant cases. The services provided included out-patient drugs, hemo-dialysis, dialysis supplies, physicians' services and kidney machines.

Careful attention is paid to applicants for cardiovascular services. For example, if open heart surgery is recommended by the examining physician, the matter goes before the Rehabilitation Services Cardiovascular Review Committee for evaluation. The committee includes two cardiologists, a thoracic surgeon and a general surgeon who decide whether the surgical procedure will make the individual vocationally rehabilitative.

Local Medical Consultants

The Rehabilitation Services rely heavily on the advice of its local medical consultants. Each of

the Division's local offices has a consultant who weekly examines the records of persons found eligible for rehabilitation services. After his examination, the consultant may recommend additional hospitalizations, etc. Or, he may find that the individual's physical condition is sound enough for him to proceed with his rehabilitation program.

The Rehabilitation Services operates facilities at Hot Springs, Benton, Little Rock, Conway and Jonesboro. Each of the facilities has medical consultants and, in some instances, the Hot Springs Rehabilitation Center for example, has its own medical staff.

The scope of physical restoration services in vocational rehabilitation in Arkansas can be judged by the fact that 4,659 cases of handicapped individuals were served during the 1975-76 fiscal year. They received 20,894 individual services.

Committee on Public Relations

Ray Jouett, M.D., Chairman

The Public Relations Committee has not met since April of 1976. Its work prior to that time had been surrounding Amendment 58, and its recommendations were forwarded to the Reference Committees. We have been presented with no problems in reference to the Public Relations Committee's activities of this year.

Advisory Committee to the Medical Assistants Society

G. G. Graham, M.D., Chairman

The activities of the Advisory Committee have been brief, due to apparent efficiency of the Arkansas State Society, American Medical Assistants. Their main efforts continue in the areas of increased membership and increased participation in their certification program. We approved a general mailing to physicians in areas where there are no local chapters, advising them of the advantages to their employees in affiliating with the organization.

In May of 1976, I was pleased to participate in the program of the Society's 22nd Annual State Convention held at the Camelot Inn in Little Rock.

In September, we were consulted regarding the selling of advertisements for the program of the Society's Third Annual Educational Seminar held at the Sheraton Inn in Little Rock. We approved of this fund raising effort and were pleased with the success of this project.

Serving with me on this committee are: W. Y. Springer, M.D., of Hot Springs; L. K. Austin, M.D., of Little Rock; Wayne G. Elliott, M.D., of El Dorado; William R. Nixon, M.D., of Pine Bluff; Annette Landrum, M.D., of Fort Smith; C. C. Long, M.D., of Fort Smith.

We stand ready to assist and advise this fine group whenever needed.

Committee on Veterans Administration Affairs

J. Warren Murry, M.D., Chairman

The Committee on Veterans Administration Affairs of the Arkansas Medical Society did not meet in the year 1976 and I have no report of activity to present for publication in the Journal at this time. We did have a meeting prior to the winter meeting of the Medical Society in 1975. As Chairman of this Committee, I usually correspond with Congressman Hammerschmidt each year for any information concerning legislation passed or legislation pending which would be of interest to the Medical Society in the field of Veterans Affairs.

Committee on Insurance

Banks Blackwell, M.D., Chairman

Members of the Committee on Insurance worked hard and long for Amendment 58. We were all disappointed in the unequal treatment it received in the courts.

The controversial Blue Cross change in the Blue Shield program which was brought up by delegates without prior notification was never presented to the Committee on Insurance for consideration or recommendation.

Committee on Medicine and Religion

C. R. Ellis, M.D., Chairman

Your Committee on Medicine and Religion has had some difficulty in getting all of our membership together but have had enough to meet to do business on two occasions. We have obtained a commitment from Dr. John J. Schwab, Chief of the Department of Psychiatry, University of Louisville, Louisville, Kentucky, to speak at the Prayer Breakfast on Tuesday morning, April 26, 1977. It is my understanding that they have courses at the University of Louisville Medical Center on Medicine and Religion, and we expect Dr. Schwab to give us a stimulating report on the progress of these courses there.

The other participants on the program for our Prayer Breakfast will be either members of the

Arkansas Medical Society or members of their families, according to our present plans. This entire program will be published in the program for the Arkansas Medical Society Convention.

We are planning to have at least two other meetings of the Committee before our State Society Meeting and hope to have a supplemental report at the Delegates' meeting presenting some aspects of a State-wide meeting sometime the latter part of 1977 in Little Rock.

Physician-Nurse Joint Practice Committee

Robert Watson, M.D., Chairman

During the year 1976, and with only a rare exception, the Physician-Nurse Joint Practice Committee has met monthly. This committee is made up of equal representation of nurses and physicians.

The theme of these meetings continues with discussions directed at continued betterment of patient care.

The role and function of each profession is freely discussed, and a better understanding and interpretation of these responsibilities now prevails.

During the past two years a much more meaningful solidarity of belief now prevails.

These meetings are scheduled to continue on a monthly basis to serve as a liaison between the state-wide membership of both professions.

Medical School Committee

Asa A. Crow, M.D., Chairman

In March 1976 the Council of the Society revised the membership of the Medical School Committee. The committee is now composed of Drs. Kemal Kutait of Fort Smith, Max Cheney of Mountain Home, James Gardner of Hot Springs, Boyce West of Clarksville and myself as chairman. The Council requested that the committee maintain active liaison with the medical school.

Dr. Thomas Bruce, Dean of the College of Medicine, appointed a committee from the medical school faculty to serve as liaison with the Society committee. Appointed were Drs. Ben Saltzman, Betty Lowe, Roger Bost and Louis Sanders. A joint meeting of the committees was held in September 1976.

There was a general review of the Area Health Education Center program by Dr. Bruce. He pointed out that the primary purpose of the

AHEC program is retention of Arkansas medical school graduates for practice in the State. At that time the AHEC's in Fort Smith and Fayetteville were fully accredited, and it was anticipated that the programs would be fully accredited in other areas of the State within the next year. Dr. Bruce pointed out that the AHEC program would make it possible for all graduates of the University College of Medicine to be trained in the State. If the medical school class size is increased as expected, limited facilities at the medical center would restrict training programs.

The committee also discussed the current law regarding the Healing Arts Examination. Dean Bruce reported that he was working with the State Medical Board to try and get some changes in the requirements for the examination.

The training program of the University of Arkansas School of Nursing was discussed. The committee drafted a resolution for presentation to the Chancellor of the University of Arkansas for Medical Sciences, Dr. James Dennis. In the resolution, the committee expressed agreement with the concept of improved nursing education, but opposition to training directed toward a status of independent practitioner rather than one of physician extender. The proposed resolution was submitted to the Council of the Society in November. It was referred by the Council to the Society's Physician-Nurse Joint Practice Committee. The Physician-Nurse Joint Practice Committee is to report back to the Council at the next meeting on its study of the proposed resolution.

Private Insurance Review Committee

H. Austin Grimes, Chairman

Thirty-one case files have been submitted to the committee for review since November 1976, when I succeeded Dr. Robert McCrary as chairman. Thirty cases have been acted upon; seven of the cases were reconsidered after the initial review. One case is pending at the present time.

The policy of the Private Insurance Review Committee is that the determination of the applicable fee for any procedure is up to the individual physician and the physician's fee is the responsibility of the patient. Any third party cannot set the physician's fee. The committee's purpose is to offer an opinion on whether the fee charged is within the usual and customary range in the locality concerned. The committee

emphasizes to the membership that it does not attempt to judge the appropriateness of physicians' fees, only to determine the usual and customary range for a given locality. The committee takes into consideration all available information on unusual circumstances involved in cases reviewed when making its determination on the usual and customary range of charges. The recommendation of the committee is provided to the private insurance companies to assist them in determining the patients' benefits under applicable insurance policies. The amount and payment of the physician's fee remains a matter between the physician and the patient.

Medical Services Review Committee
Charles F. Wilkins, M.D., Chairman

The Medical Services Review Committee, which serves in an advisory capacity to the Medical Director of Blue Cross and Blue Shield for matters related to Medicare, Blue Cross and Blue Shield, and Champus, has continued to meet during the past year and take up matters referable to fees, utilization, patterns of practice and quality of care.

Because of the illness of Dr. Robert Benafield, Medical Director of Blue Cross and Blue Shield, the Committee was less active during the second half of 1976; however, it is expected that during 1977 there will be much more activity in this field.

Sixth Councilor District
Professional Relations Committee
Donald L. Duncan, M.D., Chairman

During the period of April 1976 to February 1, 1977, two items of importance came across my desk. The first was an inquiry from a patient in Prescott, Arkansas, requesting investigation by the Arkansas Medical Society concerning her treatment. We made several attempts to contact her and even sent her a registered letter, but never received any correspondence. I contacted the physician involved and the matter has apparently been dropped.

The second problem was the apparent failure of a physician in another town to respond to a patient's request to send her medical records. This was settled satisfactorily to all parties concerned. There are no problems pending at this time.

Seventh Councilor District
Professional Relations Committee
C. F. Peters, M.D., Chairman

In the year of 1976, the Seventh Councilor District Professional Relations Committee had three cases brought before it.

These cases were gone into thoroughly and, to the best of my knowledge, were settled satisfactorily to all parties concerned.

State and Eighth Councilor District
Professional Relations Committee
Richard M. Logue, M.D., Chairman

The Professional Relations Committee for the State and the Eighth Councilor District have had no matters presented to it which required a meeting of the Committee. As chairman, I was presented with two matters which were settled by telephone without the need of committee action. These matters were resolved without the need for further consideration.

Tenth Councilor District
Professional Relations Committee
Samuel E. Landrum, M.D., Chairman

The Professional Relations Committee of the Tenth Councilor District has considered and responded to five complaints since our last Annual Report.

Four of these complaints were apparently satisfied by the information the Committee provided.

First Councilor District
John B. Kirkley, M.D., Councilor

This report of the Junior Councilor of the First Councilor District will be somewhat brief in view of the fact that most of the activities of the Medical Society are very well-known to the membership. As you no doubt know, the main thrust of our work this year was for Amendment 58 which was struck down by the Supreme Court of Arkansas.

The Governor's Medical Manpower Conference was again held this year and seemed to be somewhat stronger in its assumption of the role of medical care with the medical doctors being more or less pushed aside.

I think it would behoove as many of us as possible to try to set up a schedule so that we can attend the next Medical Manpower Conference. I believe that we should have at least a minimum of two or three physicians in each

workshop. This conference had a total of 15 to 18 workshops that met one day, all day. I believe if we can set up a schedule to get as many physicians as we can to come just for that day (if they cannot take any more time off), we can put more input into the workshops.

This movement, I feel, is a grassroots movement of other health providers to obtain more of a foothold in trying to provide medical care for which they may or may not be properly qualified.

It was very interesting to note the acceptance by most of the workers there of the role that the social workers play in interviewing mental health patients.

Fourth Councilor District **Raymond A. Irwin, M.D., Councilor**

Our concern in the Fourth Councilor District continues to be a lack of physicians in the relatively unpopulated areas of Southeast Arkansas. In Pine Bluff, an increase of physicians has been realized but these are primarily in the subspecialty areas and a need for primary care physicians is still a very real one in Pine Bluff. In Lincoln County, we now have one physician and the other counties of the Fourth Councilor District are likewise badly under-manned by physicians.

With the advent of the family practice center in Pine Bluff, we hope that perhaps some primary care physicians may be attracted to this area of our State to this program.

Professional activities in the Fourth Councilor District have revolved around the Southeast Arkansas medical lecture series which take place in Pine Bluff on the fourth Tuesday of each month under the sponsorship of the Area Health Education Center in Pine Bluff. Some of these lectures have been outstanding and well-attended and we hope to continually upgrade these in the ensuing year.

Fifth Councilor District **J. B. Jameson, Jr., M.D., Councilor** **John H. Moore, M.D., Councilor**

There has been very little unusual activity in the Fifth Councilor District this year. The Area Health Education Center is operational in El Dorado and it is possible to receive nine to ten hours of category I credit for continuing education from this program. Dr. James Guthrie and Dr. Kenneth Duzan are making a personal sacri-

fice to try to keep up with the activities of the Health Systems Agency. This organization seems to schedule their meetings in such a way as to make it extremely inconvenient for members of our profession to attend.

The Fifth Councilor District's annual meeting was held at the El Dorado Country Club in late January, 1977. The program was presented by Dr. J. S. Adamson, of Little Rock, on antibiotics. No business of note was brought before the meeting.

Tenth Councilor District **Kemal Kutait, M.D., Senior Councilor**

The activity of the members in district ten during the year was primarily in support of the proposed constitutional amendment. Several physicians in the district served on the Ad Hoc Committee for the Amendment 58 campaign. They included State Society President A. S. Koenig, Ken Lilly, and W. P. Phillips.

In June 1976 a meeting was held to inform the membership on the Amendment 58 campaign. Spencer Albright, III, of Fayetteville, addressed the group on the importance of getting a constitutional amendment.

A district meeting will be held following the Annual Session to inform the membership on actions taken by the Society during the convention.

REPORT OF THE COUNCIL

John P. Burge, M.D., Chairman

The Council of the Arkansas Medical Society met on Sunday, August 22, 1976, at the Camelot Inn in Little Rock and transacted the following business:

1. Voted to approve scheduling of television spots to support the Amendment 58 campaign.
2. Moved to elect Dr. Kenneth R. Duzan to fill the vacancy on the board of trustees of the Arkansas Medical Society Employees Pension Plan.
3. Authorized an ad hoc committee be appointed to review the services of the county health departments in the State and the projected goals of the State Health Department.
4. Voted to approve a rate adjustment for the Society's group plan with Blue Cross-Blue Shield which increases the room allowance to \$60, major medical to one million dollars

with 100% coverage above the \$5,000 level and increases eligibility for dependents to age twenty-three.

5. Voted to increase the mileage for authorized travel on Society business to fifteen cents (15¢) per mile.
6. Voted to reaffirm the date of April 16-19 for the 1978 meeting in Hot Springs.
7. Voted to hold the winter meeting on November 14, 1976.

The Council met on Sunday, November 14, 1976, at the Majestic Hotel in Hot Springs and transacted the following business:

1. Considered and approved the special audit of the Society's records for the period from December 13, 1975, to July 31, 1976, at which time Mr. Paul Schaefer retired as executive vice president.
2. Approved a motion to re-evaluate the dues structure of the Society after receiving additional information on the Society's employee retirement plan and budget proposal for 1977, and recommended the information be furnished to the Council members prior to the 1977 Annual Session.
3. Voted to approve the following physicians whose names are to be proposed to the Governor for selection on the committee to explore medical malpractice:
Dr. T. E. Townsend, Pine Bluff; Dr. Mahlon Maris, Harrison; Dr. Charles F. Wilkins, Russellville; Dr. C. C. Long, Fort Smith; Dr. John P. Burge, Lake Village; Dr. W. Payton Kolb, Little Rock; Dr. Elvin Shuffield, Little Rock; Dr. A. S. Koenig, Fort Smith.
4. Considered and approved the report on negotiations with the Bureau of Health Insurance concerning the one area fee structure.
5. Considered and voted to approve a recommendation that Arkansas not become involved in training or certification of physician's assistants.
6. Voted to schedule Council meetings on a regular, bi-monthly basis.
7. Voted to invite a representative of the Medical Group Management Association to attend meetings of the Council when the meeting agenda included items of intermediary negotiations.

The Council met on Sunday, December 12,

1976, at the Camelot Inn in Little Rock and transacted the following business:

1. Considered and voted to retain Council meetings on Sunday, which was the choice of date of the majority of the members.
2. Heard a report on the results of negotiations conducted by the Executive Committee with Mr. Tierney of the Bureau of Health Insurance and voted to support the proposal of the Executive Committee on a single fee basis for the entire State by field of practice. Approved the actions of the Executive Committee and voted that they continue negotiations and when a final fee schedule was agreed upon with BHI that it be brought back to the House of Delegates for approval before implementation.

The Council met on Sunday, February 13, 1977, at the Camelot Inn in Little Rock and transacted the following business:

1. Insurance Commissioner W. H. L. Woodyard, III, discussed alternate proposals and amendments to both the Arbitration Commission and the Reinsurance Exchange. After the insurance commissioner left the meeting, the Council, after discussing the proposals, took the following positions on the proposals presented:
 - (1) Voted in favor of continuing the Arbitration Commission in its present form.
 - (2) Voted to support continuation of the Reinsurance Exchange in its present form.
2. The Council approved the following actions of the Executive Committee:
 - (A) The Executive Committee met on December 12, 1976, and considered a membership matter involving the Benton County Medical Society. The Executive Committee voted to approve the recommendation of the district councilor that an adjustment be made and a member of the county society be credited with payment of 1976 dues.
 - (B) The Executive Committee met on December 15, 1976, and:
 - (a) recommended that Dr. Tom Meek be appointed to fill a vacancy on the Evaluation Committee of the Welfare Department for approval of applications for admission to skilled nursing care facilities;

- (b) authorized the president-elect, new councilors, and members of the headquarters staff to attend the National Leadership Conference of the American Medical Association in Chicago in January.
 3. Dr. Kolb gave the Council a brief report on the Leadership Conference.
 4. The Council received a report from the chairman of the Physician-Nurse Joint Practice Committee regarding the "resolution of concern" from the Medical School Committee. The resolution expressed concern regarding the training of independent nurse practitioners at the University of Arkansas School of Nursing. Dr. Watson reported that he had extensive and productive discussions with Dean Fields of the College of Nursing and University Chancellor James Dennis and that he felt the purpose of the resolution had been achieved. The Council voted to accept Dr. Watson's report and to watch carefully House Bill 523, proposed legislation to redefine the practice of professional nursing. There was one vote of opposition to the motion.
 5. A. S. Koenig, chairman of the Constitutional Revisions Committee, presented a proposed revision of the Society's Constitution and By-Laws. The Council approved the committee's proposal for submission to the House of Delegates with minor editing and a recommendation that the requirement for annual councilor district meetings be modified to permit the meetings to be held any time during the year.
 6. A. E. Andrews, Sixth District Councilor, presented a proposal for a special membership classification for physicians in Texarkana, Arkansas-Texas. The Constitutional Revisions Committee agreed to work with the Texas Medical Association in trying to develop some type of reciprocal membership and to present a specific proposal for consideration of the House of Delegates.
 7. Executive Vice President C. C. Long discussed figures which the Medicare Intermediary had compiled in connection with the demonstration project of the Department of Health, Education and Welfare to change from five areas to one for payment of physicians' fees under Medicare in Arkansas. The Council voted to go on record as advocating one locality for the State of Arkansas even though it is necessary that some reduction of fees occur in some areas and, further, that the Executive Committee of the Council be instructed to act accordingly after taking into consideration all information available.
 8. T. E. Townsend discussed the informed consent requirement of the Communicable Disease Center for polio vaccine. The Council voted to ask that the chairman write a letter to all of the Arkansas Congressional delegation advising them that the Medical Society feels the requirement for signing a consent form for routine immunizations will be a detriment to the immunization program.
 9. Chairman of the Legislative Committee Elvin Shuffield recommended that a resolution commending the late State Representative Ivan Rose be drafted and a copy forwarded to the family. It was so voted.
 10. C. R. Ellis, Chairman of the Committee on Medicine and Religion, presented a request for funds for activities of the committee during 1977. The Council approved underwriting the Prayer Breakfast at the Annual Session and the Physician-Clergy Seminar planned for the fall of 1977 in an amount up to \$500.
- The following items of business were considered in executive session:
1. H. W. Thomas, Chairman of the Budget Committee, presented the proposed budget for the Society for 1977. Dr. Thomas reviewed some of the major items in the budget and emphasized the effect of inflation. He advised the Council that the cash reserve of the Society at the end of 1976 was \$110,000, approximately one-third of a year's operating expense. Dr. Thomas mentioned concern expressed about the cost of the retirement plan and called the attention of the Council to the corrected figure of \$45,832 as the proposed budget item for the retirement plan for 1977. Dr. Thomas called on Mr. Schaefer as one of the trustees of the retirement plan to further explain the status of the plan. Following some discussion, the Council voted to approve the budget as pre-

seuted by the budget committee and amended as follows for two line items:

Legal Counsel \$10,000
Medicine and Religion Committee 500

2. Mahlon Maris requested a ruling on proxy voting by Council members. Legal counsel advised that proxy voting by a member of a board of directors is not legal.

**Report of the Executive Vice President
C. C. Long, M.D.**

This, my first year, starting August 1, 1976, has been one of achievements and failures. Amendment 58, which was proposed by the Legislature and promoted through the combined efforts of the Medical Society, the staff, and many other interested groups, was ruled off the ballot by the Supreme Court due to a recording error. We will be faced again in the coming years with developing and passing a satisfactory solution to the malpractice problem.

In the area of achievement, after a long and hard campaign, the Society has been notified that Medicare will allow the physicians of this State to be considered as one area for compensation under the Medicare program and that the fee structure will only be divided by fields of practice.

The four area Health Systems Agencies in the State are functioning under a conditional status. The physician-members of the board are taking an active part in representing the interest of the medical profession in the welfare of their patients. The headquarters office has been actively involved, maintaining communications and relationships with the four HSA areas.

The Professional Standards Review Organization, under the Foundation for Medical Care which was originally formed under the Medical Society, is functioning under the able leadership of Mr. Paul Schaefer and, as of the first of February, approximately 89% of the hospital beds in the State of Arkansas will be under binding review.

My first six months as Executive Vice President have been of challenge, confusion, and education. I have learned to be even more appreciative of our able staff, and of the fine organization that Mr. Schaefer turned over to me. His continuing counsel and guidance have been extremely valuable to me in assuming this responsibility.

Budget Committee

H. W. Thomas, M.D., Chairman

The Budget Committee submitted the following budget for 1977. The complete budget, as presented to the Council, is available to any member for his inspection at his request.

INCOME

<i>Budget Item</i>	<i>1977 Budget</i>	
Membership Dues	\$331,360.00	
Journal Advertising		
Local	\$11,500.00	
National	15,000.00	26,500.00
Booth Income		8,000.00
Annual Session Income		3,000.00
AMA Reimbursement		2,700.00
Miscellaneous & Rosters		100.00
Interest on Government Securities		15,000.00
Specialty Desk		660.00
Intrav		1,500.00
Ark. Foundation for Medical Care		12,000.00

		\$400,820.00

EXPENSES

Salaries		
Society	\$97,653.00	
Public Relations	19,500.00	
Journal	14,000.00	
Exhibits	2,000.00	\$133,153.00
Travel & Convention		
Society	23,300.00	
Public Relations	6,000.00	
Journal	700.00	30,000.00
Taxes		
Society	6,700.00	
Journal	1,000.00	
Exhibits	—0—	7,700.00
Retirement		
Society	40,332.16	
Journal	5,499.84	45,832.00
Stationery & Printing		
Society	3,250.00	
Public Relations	50.00	
Journal	450.00	
Exhibits	50.00	3,800.00
Office Supplies & Expense		
Society	8,875.00	
Public Relations	25.00	
Journal	1,100.00	10,000.00
Telephone & Telegraph		
Society	3,810.00	
Public Relations	900.00	
Journal	275.00	

<i>Budget Item</i>	<i>1977 Budget</i>	
Exhibits	15.00	5,000.00
Rent		
Society	13,728.00	
Journal	1,872.00	15,600.00
Postage		
Society	14,000.00	
Public Relations	50.00	
Journal	1,900.00	
Exhibits	50.00	16,000.00
Insurance & Bonds		
Society	5,016.00	
Journal	684.00	5,700.00
Auditing		
Society	1,056.00	
Journal	144.00	1,200.00
Council Expense		4,000.00
Journal Printing		31,000.00
Annual Session		
Society	11,534.00	
Exhibits	2,200.00	13,734.00
Winter Meeting		2,000.00
Dues & Subscriptions		
Society	4,100.00	
Journal	400.00	4,500.00
Gifts & Contributions		
Society	695.00	
Journal	50.00	745.00
Woman's Auxiliary		1,200.00
Legal Services		
Society	9,300.00	
Journal	700.00	10,000.00
Special Committee		
Society	150.00	
Public Relations	150.00	
Medicine and Religion	500.00	800.00
Rural Health		500.00
Miscellaneous		50.00
Freight & Express		
Society	12.50	
Journal	12.50	25.00
Office Equipment		1,000.00
Continuing Medical Education		1,000.00
<hr/>		
Total Expense Budget for 1977	\$344,539.00	

As a result of deficit spending over the past several years, the cash reserves of the Society had decreased to \$110,000 at the end of 1976, the lowest level for cash reserves in eleven years. The increased dues and revenues this year should reverse this trend; however, a principle of good

business management is that there be at least one year's operating funds in reserve.

Report of the Arkansas State Medical Board January 1, 1976 - January 1, 1977

The officers and members of the State Medical Board are as follows:

Ross Fowler, M.D., President

H. Elvin Shuffield, M.D., Vice-President

Hugh R. Edwards, M.D.

Frank M. Burton, M.D.

John F. Guenthner, M.D.

George F. Wynne, M.D.

C. Stanley Applegate, Jr., M.D.

Bascom P. Raney, M.D.

Joe Verser, M.D., Secretary-Treasurer

Eugene R. Warren, Attorney

The State Medical Board in regular session adopted a resolution asking the Healing Arts Board to adopt Day I of the FLEX examination as their standard examination and instructed the Secretary to present this proposal to the mid-winter session of the House of Delegates of the Arkansas Medical Society for their consideration.

The State Medical Board held a public hearing relative to the reporting of malpractice claims by physicians to the State Medical Board as required by an Act of the 1975 Legislature. A standard reporting form was adopted. This form was published in the February 1977 Journal of the Arkansas Medical Society.

The State Medical Board had published in the Arkansas Medical Society Journal a standard procedure to be followed when a physician surrendered his DEA number, unused forms or narcotics on hand. This also appeared in the February 1977 Journal.

During the year, the board received approximately twenty-five complaints from patients against Arkansas physicians. Some were not justifiable complaints. All others were settled satisfactorily by the board with the cooperation of the physicians and patients.

A yearly financial report of the board's activities prepared by Johnston, Freeman & Company was sent to and approved by the Council of the Arkansas Medical Society.

The board investigated every case of violation of the Medical Practices Act reported to the secretary during the year.

Following is a summary of the board's proceedings:

Physicians registered to Dec. 1, 1976:

Resident	2,282
Non-resident	1,599
Physicians licensed by examination	147
Physicians licensed by reciprocity	123
Physicians certified to other states	130
Licenses revoked for non-payment of annual registration fee	41
Licenses suspended for non-payment of annual registration fee	70
Licenses suspended for violation of Medical Practices Act	6
Cases pending for violation of Medical Practices Act	5

Schedule 1

**Arkansas State Medical Board
Balance Sheet
June 30, 1976**

ASSETS

Cash on hand		\$	6.00
Cash in banks —			
Bank of Weiner, Weiner, Arkansas			
Certificate of deposit #3170	\$ 8,553.71		
Certificate of deposit #854-20	2,746.35		11,300.06
Bank of Harrisburg, Arkansas			
Checking account	\$ 18,965.72		
Certificate of deposit #2298	12,999.70		
Certificate of deposit #2424	7,000.30		38,965.72
Bank of Delight, Arkansas			
Certificate of deposit #1249	\$ 30,000.00		30,000.00
Security Savings and Loan			
Certificate of deposit #2290	\$ 15,000.00		15,000.00
Office equipment			3,545.97
TOTAL ASSETS		\$	98,817.75

LIABILITIES AND SURPLUS

LIABILITIES

Withholding and FICA taxes deducted and unpaid for the quarter ended June 30, 1976		\$	335.21
SURPLUS			
Balance at beginning of year	\$ 97,023.95		
Add: Excess of receipts over disbursements for year ended June 30, 1976 (Schedule 2)	907.89		
Add: Decrease in payroll taxes withheld but not remitted at June 30, 1976	550.70		98,482.54
TOTAL LIABILITIES AND SURPLUS		\$	98,817.75

**Summary of Arkansas State Department
of Health Activities**

Rex C. Ramsay, Jr., M.D., Director

This report presents, in brief, many facts on health care in our State. Since reports need to be short and to the point, there are many hours and days spent by our staff that are not reported (i.e., the hours of counseling with or attending to crises, the many hours spent in offering friendly advice to individuals and planning the delivery of needed services, and improvising methods of doing a better job in the improvement of all programs in the State).

I. BUREAU OF MEDICAL CARE SERVICES

The Bureau of Medical Care Services provides comprehensive services in health care for families in Arkansas. Intensive programs in preventive health are carried out in cooperation with school and civic organizations. Examples of programs which have meant much to the health and welfare of the citizens are immunization drives, hearing and vision screening, cancer screening and preventive services, pediatric screening, and family planning services.

Division of Maternal and Child Health

The Division of Maternal and Child Health provides comprehensive health services to mothers and children. The majority of programs attempt to reach poverty level groups who often do not receive medical care through private sources. Emphasis is placed on the care of infants, preschool age children and care of mothers during pregnancy and the interconceptional years.

During the first year of a three-year contract with NIH, the *Cervical Cancer Screening Program* performed a total of 43,024 pap smears. To date, 64 have been diagnosed with *in-situ* cervical carcinoma, six with invasive cervical carcinoma, and one with questionable endometrial adenocarcinoma.

The Nutrition Program provides services for individuals and groups needing assistance in normal and therapeutic nutrition. In fiscal year 1976, 9,000 mothers and children received counseling on nutritional problems in childhood and pregnancy; 3,508 individuals on therapeutic diets were counseled.

The Women, Infants and Children Special Supplemental Food Program (WIC) serves low income maternity patients and children to age 5

in 14 Southeast Arkansas counties. This program is funded through the United States Department of Agriculture with 129 local food retailers participating. Supplemental food and partial medical evaluations were provided to 2,752 infants, 8,004 children and 817 women during the past year.

Additional services to women included 91,607 family planning clinic visits and 16,252 maternity clinic visits.

The Health Outreach Program scheduled 34,424 appointments from contact services to patients to explain early and periodic screening and family planning services available through local health departments to Medicaid recipients. In addition, arrangements were made for transportation (8,545 were transported) and child care when needed. Clinic casework assistance was also provided.

A program of comprehensive health care to children with, or suspected of having, handicapped conditions is offered at the Handicapped Children's Center. Children receive medical, social, psychological, dental, speech, audiological and vision evaluations. Services during FY 76 included 616 mental retardation evaluations of which 481 were for new patients; 1,074 speech and hearing evaluations; 101 hearing aid evaluations; 1,894 speech and language therapy sessions; 923 group sessions; 94 individual sessions for hearing impaired children; and 825 dental visits by handicapped children.

Additional services to children included 15,654 well-child clinic visits, 21,598 PKU tests of newborn babies; 141,606 vision screening tests; and 110,800 hearing screening tests. Vision and hearing screening is conducted with assistance of schools, PTA groups and civic organizations.

Division of Communicable Diseases

The Division includes programs in epidemiology, immunization, venereal disease control, tuberculosis control, and veterinary public health.

An outbreak of an influenza-like disease in the Garland County Courthouse was found to be due to histoplasmosis which grew in bird droppings on the roof. The droppings were treated and disposed of and cases of "courthouse flu" ceased. Several food and waterborne outbreaks were investigated.

The international travelers' immunization

clinic provided immunizations, malaria prophylaxis and up-to-date information on the health problems Arkansas travelers can expect in some foreign countries.

Venereal Disease Program

A 24.6% increase in infectious syphilis was noted in fiscal year 1976 as compared to fiscal year 1975. There was a 5.4% decrease in early latent syphilis. During the year, 134 syphilis patients were interviewed; 359 contacts were investigated; 41 new patients were brought to treatment; and 205 contacts were treated prophylactically. The syphilis serology program resulted in 11,458 positive serologies for syphilis of which 634 required investigations. The follow-up resulted in bringing to treatment 52 patients for early syphilis and 196 patients for other stages of syphilis.

Gonorrhea continues as the most frequently reported venereal disease. During fiscal year 1976, 13,602 cases were reported. This represents a 6.1% increase over fiscal year 1975. During this year, 69,324 cultures were performed on females and 4,176 were positive and treated for gonorrhea.

Tuberculosis Program

Over the last several years we have noted alternating increases and decreases in the morbidity of tuberculosis. We show an increase of 63 previously unknown active TB cases. This increase (63 cases) appears to be a result of more complete reporting of cases by physicians.

During 1975 when Arkansas reported 501 cases for a rate of 24.3 cases/100,000 population, the U. S. reported 33,989 cases for a rate of 15.9/100,000 population. Arkansas has always been higher than the national average.

The Program in Arkansas continues to provide short term general hospital in-patient care in 10 treatment centers throughout the State for TB suspects and for TB cases with acute illness. The Program pays for patient care beyond that which is paid for by whatever insurance the patient may have. Currently, this represents approximately 400 patients each year with an average hospital stay of 16.3 days.

Tuberculosis outpatient services are provided through the 73 chest clinic sites located in local county and city health units throughout Arkansas. These clinics are staffed by a public health nurse and a physician trained in tuberculosis.

Veterinary Public Health

The Program continues the service of providing protection and consultative assistance to citizens of Arkansas who become exposed to animal diseases which are transmissible to man. A great number of these diseases are very destructive to man. Requests for information and assistance come from physicians, veterinarians, and local health departments, as well as individual citizens.

There were 120 laboratory-confirmed cases of animal rabies in Arkansas during the year. The cases were reported by species as follows: bat—11, cat—1, cattle—7, dog—1, opossum—1, raccoon—1, and skunk—98.

There were 187,759 pet animals vaccinated against rabies by practicing veterinarians during the fiscal year.

There were 2,274 incidents of animal bites to humans reported this fiscal year in Arkansas.

Immunization Program

Disease prevention continues to be a fundamental objective of public health programs. Immunizations against diphtheria, measles, pertussis, polio, rubella and tetanus are routinely administered at regularly scheduled clinics in each local health department. Local health departments also conduct special immunization clinics and administer immunizations as a part of the program for early and periodic screening, diagnosis, treatment and prevention. When combined with immunizations given by private physicians, hospital clinics, and school health programs, they provide a system for maintaining good immunization levels throughout the State.

A statewide survey was conducted to assess the immunization levels for first grade children. All 633 elementary schools in the State with first grades were included in the survey sample. Of the 633 schools, 506 (79.9%) responded. The number of schools responding was up from 413 to 506 representing an increase of 15.3%. Immunization levels rose for each vaccine; DPT 6.2%, OPV 8.3%, measles 2.3%, rubella 5.3% and mumps 5.4%.

Division of Dental Health

The Division of Dental Health in fiscal year 1975-1976 devoted most of its funding monies toward direct dental services to low income families both in urban and rural areas.

Clinics were held in the health units at Jonesboro, Arkadelphia, Texarkana, North Little

Rock and the Southeast Regional Health Department at Monticello.

Water supplies in 89 communities, serving a total population of 779,000 persons, are now being fluoridated. Arkansas ranks high, compared to other states, in adding this preventive dental health measure.

II. BUREAU OF ADMINISTRATIVE SERVICES

These services include the Divisions of Accounting, Building Maintenance, Data Processing, Health Statistics, Personnel, Program Information and Vital Records.

Other functions include Equal Employment Opportunity, Affirmative Action Administration, Mortician Training Grants administration and Worker's Compensation.

The Personnel Division provides advice and direction to all Division heads, supervisors and local health department administrators regarding interpretation of personnel policies and procedures as established for State agencies by the Office of Personnel Management and Arkansas Merit System Council.

The Agency currently has approximately 1400 employees, (central office and local health units). This office maintains all personnel records, coordinates recruitment and all other employment practices for the Agency including salary advancement, promotions, terminations, establishing career ladders and counseling employees.

The office cooperates with the Office of Personnel Management in maintaining and revising the classification system.

Division of Health Statistics

During the year of July 1, 1975, through June 30, 1976, the Division distributed 503 copies of the Arkansas Vital Statistics Biennial Report of 1973-1974. The Division processed approximately 175 miscellaneous requests for vital and health statistics data during the year. A total of 21,481 death certificates were coded as to the primary cause of death according to the International Classification of Diseases.

Division of Data Processing

In March 1976, a Burroughs B1700 computer was installed in the Health Department building. In June, a new Inforex data entry system was made a part of the operation. The entire system is now disk and tape; capable of processing three computer languages, as well as being able to

function in a multi-programming mode with capabilities of future expansion.

In less than four months, we have decreased the backlog of all "in house" programs awaiting processing.

Division of Vital Records Calendar Year 1975

The Division of Vital Records recorded a total of 33,628 live births; 21,481 deaths; and 431 fetal deaths for the year 1975.

All certificates of birth, death and fetal death are bound in volumes and indexed by place and date of event.

Local registrars representing all districts in the State file birth and death certificates each month. Contact is maintained with the registrars, physicians, midwives, local health departments, funeral directors and hospitals in order to stimulate registration of these vital events.

Marriage records totaling 20,809 were received from the county clerks of the State. Circuit clerks reported 16,767 divorces and annulments granted for the same period.

During the year, 20,270 copies of death certificates were issued to the county clerks of the State.

During 1975, 5,175 amendments were made to certificates filed in the Division of Vital Records. Of this total, 1,346 were adoptions, 381 were legitimations and 435 were changes of name. Delayed and prior birth records for this period numbered 8,028.

The number of copies of vital events issued during the year was 195,759, an average of 780 copies per work day.

Division of Accounting

The business management responsibility of the Health Department rests with the Accounting Division. Among its support and control functions are budget coordination and preparation, fiscal management, including fund accounting, collections and appropriation control, along with periodic reporting and analysis of budget status.

During the fiscal year 1975-76, gross receipts amounted to \$23,503,186.00 and disbursements totaled \$22,813,833.00.

III. PHARMACY ADMINISTRATION

The Office of Pharmacy Administration was created January 1, 1976, to form a more efficient program of pharmacy services, by combining Drug Control, Central Pharmacy Services, Local

Pharmacy Services, Drug Destruction and the Generic Drug Program under the direction of a registered pharmacist.

The services provided by the Drug Control Division include the enforcement of regulations by conducting 890 inspections, 90 investigations, and 20 accountability audits on handlers of controlled drug substances and devices.

The Drug Destruction Program provided for the destruction of 936,510 dose units of submitted controlled substances surrendered by legitimate handlers, law enforcement personnel and the courts.

The Generic Drug Program has been in existence since October 1, 1975, and has resulted in a cost savings to the citizens of Arkansas of approximately 4% of their prescription drug purchases.

IV. BUREAU OF PUBLIC HEALTH ENGINEERING

The Bureau has progressed a great deal in the last year in many areas including: implementation of the gas fitters licensing program in the Building Safety Division; applications for an approval of Federal funds in the Division of Engineering in order to implement the administration of the Federal Safe Drinking Water Act in Arkansas; and surveillance programs by the Division of Vector Control and Recreation to obtain information that will help control vectors causing such diseases as St. Louis encephalitis, histoplasmosis, and spotted tick fever.

In reviewing these accomplishments, the Bureau of Public Health Engineering is proud of the services rendered to the citizens of Arkansas during this period.

Division of Building Safety

The number of plans reviewed under Act 469 of 1965 almost doubled this year. Another new program started this year is the examining of all local plumbing inspectors in the State for certificates of competency.

A need for plumbers in rural areas and in small towns without a sufficient number of regular licensed plumbers was observed. Therefore, rules and regulations were adopted to examine applicants for limited plumber licenses. Limited licenses are to cover only one story residential construction and small commercial buildings, and the plumber is permitted to work only in one particular town or area.

Division of Engineering

The Division of Engineering has set a goal to maintain a healthful environment, free of water-borne diseases and toxic materials, by providing regulation of public water and wastewater facilities and other health related problems.

The program services provided by the Engineering Division are:

1. Review of plans and specifications for all public sanitary facilities. A total of 926 plans were reviewed.
2. Monitoring and field surveillance of all public water supplies to ensure that the public is served safe drinking water. A population of 1,460,000 is served by 507 public water systems in Arkansas. The results of 40,400 bacteriological examinations showed that 96% of the population served by public water supplies was consuming bacterially safe drinking water.
3. Training and certification of water works managers and operators to assure competency and efficiency of water works operation. Water works examinations were given to 377 operators and 124 water works operators were certified.
4. Provide specialized public health and engineering assistance to municipal water and wastewater departments. A total of 3,445 engineering consultations were provided to various Federal, State, county and city officials, and 143 various sanitation problems were investigated.

Division of Vector Control and Recreation

The Division has responsibilities in three major areas: Vector Control, Recreation, and Rodent Control.

In response to 17 confirmed cases of St. Louis encephalitis and one case of California encephalitis, ten (10) city-wide mosquito surveys were made determining breeding sites, species, distribution and population density. Each city was instructed as to the control measure most effective to the individual situation.

The Division of Vector Control assisted the Division of Communicable Diseases by trapping rats for an epidemiological investigation in a human death from leptospirosis. Personnel also assisted in an epidemiological investigation into causes, sources, etc., of a histoplasmosis outbreak affecting 68 persons. Recommendations were

made concerning the proper method of disinfection of a pigeon roost which was determined to be the source of the histoplasmosis. The Division relocated four blackbird roosts due to histoplasmosis potential.

Division personnel assisted with three bat control programs. Bat control methods are conducted to reduce rabies potential and extoparasites, as well as other diseases transmissible to man by bats.

Rodent Control

During the year, preliminary rat surveys were conducted in seven cities. A total of 282 blocks, and 4,155 premises were surveyed; approximately 32,800 pounds of rat poison was distributed.

Recreation

The Division is responsible for surveillance, testing, sampling and inspection of recreational facilities such as camps, parks, public use areas and rest stops in Arkansas. Inspection and issuing permits for all houseboats, pleasure craft, and commercial water craft which are suitable for overnight occupancy is conducted by the Division.

V. BUREAU OF EMERGENCY HEALTH SERVICES

The Emergency Medical Services Act 435 of 1975 authorized the Department of Health, Bureau of Emergency Health Services, to develop and implement rules, regulations, and standards relating to ambulance service operations, equipment and personnel. This includes licensing all EMS providers, issuing and renewing permits for ambulance services, certifying emergency medical technicians and defining the procedures or services such personnel can render.

Approximately 3,030 persons have been trained and certified on the basic EMT level, including many firefighters and law enforcement personnel whose duties often involved them in emergency medical assistance.

VI. BUREAU OF COMMUNITY HEALTH SERVICES

The Bureau of Community Health Services is primarily concerned with the delivery of health services at the local level. The Bureau is made up of the Divisions of Records and Clerical Services, Chronic Diseases, Sanitarian Services, Meat Inspection, Public Health Education and Public Health Nursing.

The Division of Records and Clerical Services provides clerical personnel for local health units in 75 counties and the regional health offices; orientation and on-the-job training for these employees; administrative leadership, planning, direction and evaluation of clerical services in order to improve techniques and skills for increasing work productivity, services and efficiency.

Another major function is to establish and maintain good morale through proper job classifications and promotions.

Division of Sanitarian Services

The Division of Sanitarian Services includes Food Products Control, F.D.A. Contract Section, Milk and Dairy Products, and a General Sanitation Section. The Division is continuing to coordinate local health department sanitarians, the various Divisions of the Arkansas Department of Health, and other agencies charged with environmental health programs within the State.

In 1976, twenty-four (24) new sanitarians were assigned to local health departments. Today all counties have full or at least partial coverage by field sanitarians.

Food Products Section

The expanding economy was reflected in the growth of the retail food industry during the past year. There were 880 plans for food handling establishments inspected by central office and field personnel.

A total of 583,733 pounds of distressed food was reconditioned, destroyed or converted into animal feed. This food was involved in tornadoes, fires, floods, or otherwise found to be in violation of the Arkansas Food, Drug, and Cosmetic Act. During the past fiscal year, 807 food items were sampled and examined for filth, insects, illegal color or economic fraud.

Milk and Dairy Products Section

The primary responsibility of the Milk and Dairy Products Section is to ensure that all sources of milk and dairy products meet the established standards that assure the public of the safest and highest quality products.

In the effort to assure product safety, 3,908 bacteriological milk and dairy product samples, along with 230 milk samples for pesticide analysis, were collected. Samples for the pesticide surveillance program increased to approximately three times last year's rate.

FDA Contract Section

The Food and Drug Administration has contracted with the State for the past three years to ensure inspectional coverage of selected food-related firms. Bakeries, bottling plants, warehouses, terminal restaurants, caterers and vehicle servicing points were included among the selected firms.

During the past year, there have been 496 inspections/re-inspections of bakeries, bottling plants, warehouses, terminal restaurants, caterers and servicing points, and 773 food samples and subsamples were submitted to the laboratory for analysis.

Division of Public Health Nursing

For those who recall the devastation of the Cabot tornado, some will remember that public health nurses worked long hours and were on call around the clock for more than a week. They provided immunizations, first aid, community referral service, in addition to rendering those ongoing, essential services that patients needed for family planning, tuberculosis, home health (bedside care) and other priorities.

Immunization clinics are helping to prevent diseases that some young mothers have never seen. The mention of diphtheria, whooping cough, tetanus, measles, smallpox and polio no longer strikes seasonal dread into the population.

Through routine screening and assessment techniques, nurses have identified children with hypertension, geneto-urinary deformity, sickle cell anemia, orthopedic, nutritional and behavioral problems; having identified these problems, they work through the family and community resources to obtain medical evaluation and treatment.

When illness confines a family member to his home, the nurse armed with written orders from the patient's attending physician assists with therapeutic patient management in the home. This commitment to care may combine skilled nursing procedure with teaching self-care, obtaining supplies, tapping community or medicare resources for beds, chairs, pads, lifts; or observing, recording, and reporting significant change to the doctor.

More private physicians cooperate and contract with the Health Department to staff special clinics over the State in maternal and child care, family planning, and chest diseases. Routine

nursing procedures, meaningful histories, improved records and clinic management combine to enhance delivery of efficient medical services.

Division of Chronic Disease

The Division of Chronic Diseases activities are directed toward programs involving chronic illnesses. A Diabetic Screening Program for high risk individuals is conducted by local health units. A total of 10,011 persons were screened, of whom 193 were referred with 71 confirmations.

In an effort to reduce and prevent heart damage and rheumatic fever, the Rheumatic Fever Prevention Program furnishes convenient mailing kits to physicians through local health units for rapid processing of throat swab specimens by the Division of Public Health Laboratories. When hemolytic streptococcus was identified, a telephone report of positive findings was made to the physician. Of the 12,611 specimens received, 2,247 were positive.

Cancer Section

It has long been recognized that one of the basic elements of cancer control is an effective mechanism for measuring the quality and quantity of cancer diagnosis and treatment in an institution. This may be accomplished by collection and analysis of data in the hospital cancer registry. There are 11 reporting hospital cancer registries in Arkansas. The Arkansas State Cancer Registry processed 4,792 tumor registry abstracts and 8,287 follow-ups received from these reporting registries. There have been a total of 55,697 cancer cases abstracted since 1935. There were 11,529 tumor registry abstracts and follow-up reports coded for data processing.

Division of Meat Inspection

The function of the program is to provide consumers of meat and meat food products health protection from the many diseases of animals transmissible to man by the eating of meat and meat food products which may otherwise have come from diseased animals or animal products which have been contaminated and/or adulterated while being processed, stored, and/or transported under unsanitary or harmful conditions. The Program further provides the consumer with protection against meat improperly labeled or falsely advertised.

Currently, there are 98 official plants under full-time inspection as either slaughterers, processors, or slaughter/processors. There are 67 es-

tablishments which are custom exempt slaughterers and/or processors. The custom exempt plants, which kill or cut up farm animals and return the meat to the owners, are inspected for adequacy of facilities, in-plant sanitation procedures, and the proper handling of products.

Approximately 153 million pounds of meat was inspected in Arkansas during 1975 under State inspection. During calendar year 1975, 1,141,334 pounds of products were condemned as unfit for human consumption. This is equivalent to slightly more than 0.7 percent. The State inspection job is accomplished with 60 meat inspectors.

Division of Health Education

During the year, the Division organized and presented 136 educational programs to a total of 9,808 persons.

The Film Library, one of the most important services of the Division, showed a 53% increase over the last year in film requests by schools and other users.

Pamphlet distribution was more than half a million copies. There were 24 new pamphlets developed this year.

Orientation programs and tours for new employees and various visiting groups "rounded out" a busy and productive year.

VII. BUREAU OF HEALTH FACILITY SERVICES

The following programs are administered by the Division of Hospitals and Nursing Homes: Construction and modernization of hospitals and medical facilities, construction of community facilities for the mentally retarded, and construction of community mental health centers.

Under the Social Security Act (Medicare Program), the Division has the responsibility for surveying health care facilities such as hospitals, nursing homes, independent laboratories, Home Health Agencies, Occupational Therapy centers, and End Stage Renal Dialysis Facilities.

Other programs within the Division are the licensure of hospitals, nursing homes, and nursing home administrators; and the enforcement of Act 122 of 1967, which requires that buildings constructed with public funds be accessible to and usable by the physically handicapped.

This year, the Hill-Burton Program, through its grants and loans, saw the completion of seven (7) new medical facilities. Presently, there are

six (6) facilities under construction, and thirteen (13) additional facilities have received approval for grants or loans.

The largest facility completed this year was the Baptist Medical Center in Little Rock. Also completed was St. Michael's Hospital in Texarkana. Three facilities in the construction process are Crittenden Memorial Hospital in West Memphis, Johnson County Hospital in Clarks-ville, and the Arkansas Enterprises for the Blind in Little Rock. Magnolia City Hospital is due to start construction this year.

Public Health Centers in Independence, Sharp, Fulton, Izard, Jackson, and Faulkner Counties were approved for construction.

The State Licensure Program has the responsibility for licensing all hospitals, nursing homes, and related facilities in the State. Licensure is dependent upon the facilities' compliance with State Rules and Regulations for Hospitals and Nursing Homes. There are 216 Nursing Homes consisting of: 84 Skilled Nursing Facilities with a bed capacity of 8,028; 120 Intermediate Care Facilities with a bed capacity of 9,617; six (6) Intermediate Care Facilities for the Mentally Retarded with a bed capacity of 204. There was an increase of 710 nursing home beds during the year. The Division performed 350 inspections fulfilling this responsibility. Presently, there are 101 hospitals with a bed capacity of 11,799.

Another responsibility of the Division is to review all new construction plans of medical facilities and to conduct onsite inspections to ascertain compliance with State and local standards. This year, 150 plans were reviewed for facilities within the following categories: 81 hospitals, 53 nursing homes, and 15 public health centers.

Nursing Home Certification Program

The Nursing Home Certification Program is charged with the responsibility of surveying nursing homes to determine their eligibility for participating in the Medicaid Program. During this fiscal year, 185 surveys were performed: 69 in Skilled homes, 110 in Intermediate Care homes, and six (6) in Mental Retardation facilities.

Division of Public Health Laboratories

The Division of Public Health Laboratories supplies the services needed in microbiology and clinical chemistry to the several programs and Divisions of the Arkansas Department of Health,

the local and county health units, clinics, hospitals, physicians' offices, veterinarians, and other medical providers throughout the State. The Division has nine (9) sections and 21 units, including 16 laboratories, all within the Central Office of the Health Department.

During fiscal year 1976, this Division had an overall increase of 1.2% in specimens received and 3.1% in examinations performed. Greatest increases were in the Food Laboratory (144%), the Milk Laboratory (46%), the Clinical Laboratory (27%), and the Virology Laboratory (24%).

Programs for the detection of gonorrhea and for detection of beta-hemolytic streptococci were very active this year. There were 12,627 specimens received for detection of beta-hemolytic streptococci (18% positive) and 72,224 cultures for detection of gonorrhea (7% positive).

The Serology Section performed 137,299 examinations for syphilis, including 3,451 fluorescent Treponemal Antibody tests for diagnostic problem cases. Of these tests, 15,570 were for the premarital certificates required by law. The Laboratory Improvement Section continued its proficiency testing and certification of 119 other laboratories throughout the State to also perform these tests. Also performed were 2,886 serological tests for diseases such as tularemia, brucellosis, salmonellosis, typhoid, and other fevers.

Over 900,000 laboratory reports were written, duplicated, recorded, distributed, and filed by the administrative and clerical section besides handling thousands of phone queries for reports or information.

VIII. BUREAU OF ENVIRONMENTAL HEALTH SERVICES

The Bureau's primary concern is "offering the citizens of Arkansas a comprehensive environmental health program of services to ensure a clean and healthful environment in which to live, work and play."

Division of Blood Alcohol

The Division of Blood Alcohol continued its regulatory functions in the area of DWI (Driving While Intoxicated) testing. At the close of fiscal year 1976, there were 122 certified installations in Arkansas. These are local police departments and sheriffs' offices which have approved devices and personnel certified for the purpose of testing subjects to determine the alcoholic content of the blood. The instruments, a total of 147,

are certified by Blood Alcohol personnel who make an inspection visit once every three (3) months. There are approximately 1,100 certified officers in the State.

Blood samples are sent to the Blood Alcohol lab for analysis and possible use as court evidence. This year, 688 samples were analyzed, an increase of 39% over last year.

Division of Health Mobilization

The Division of Health Mobilization encompasses two (2) sections of Emergency Health Planning and Preparedness and is operated in conjunction with the overall State Emergency Preparedness Plan, coordinated by the State Office of Emergency Services.

Radiological Defense Program

The Radiological Defense Program, more commonly referred to as the RADEF program, specialized in the readiness and reliability of the entire radiological defense systems at State and local levels. The objectives of the RADEF Program are:

1. To operate maintenance and calibration facilities for radiation monitoring equipment located across the State in various monitoring stations and shelters.
2. To train monitors to operate the radiological monitoring equipment.

Health Mobilization Program

The Health Mobilization Program also includes medical facility support in the Packaged Disaster Hospitals (PDH) and Hospital Reserve Disaster Inventory (HRDI) Programs, and individual survival and health measures in the popular Medical Self-Help Program.

Poison Control Program

The Poison Control Program is responsible for coordinating the activities of the Poison Control Centers and conducting the Pesticide Project in Arkansas. The nine (9) Poison Control Centers, of which eight (8) are treatment centers as well as information sources, have been active in responding to poisoning cases and providing information on request. One center alone responded to 2,353 requests for poisoning information from various points in Arkansas.

Pesticide Project

The Pesticide Project has major emphasis in pesticide residue monitoring programs, accident and incident investigation, and training on safety

in the use and handling of pesticides. Milk monitoring for pesticide residues is conducted with the collection of 233 samples from milk produced and consumed in Arkansas.

Division of Radiological Health

The Division of Radiological Health conducts a comprehensive program of radiological health services throughout the State. Particular program emphasis includes: (1) regulation of users of radioactive materials, x-ray machines and particle accelerators, (2) environmental radiation monitoring or source-oriented nuclear facilities, (3) emergency response to radiological incidents, and (4) monitoring of nonionizing radiation.

At the close of 1975, the Arkansas Nuclear One power generating station achieved one year of commercial operation. Environmental radiation monitoring programs at the facility, conducted by the Division on a weekly, quarterly, and semi-annual basis, revealed no significant increase in the offsite environmental radiation that may be attributable to the operation of the facility.

Division of Childhood Blood Lead Screening

This Federally funded statewide screening program screens children under six (6) for lead poisoning. Few childhood diseases occupy a position as unique as lead poisoning. Silently, almost unnoticed, it causes needless death of many children and leaves more with mental retardation, cerebral palsy, convulsive seizures, blindness, learning defects, behavior disorders, kidney disease, and other handicaps. The cost per child screened was \$20.00, and for every \$206 expended, a child who required some type of follow-up was located, referred for diagnostic testing, and any treatment. In addition to immediate medical attention for the child, an inspection was accomplished to locate and abate the lead hazard from the dwelling where poisoning had occurred, while follow-up and retesting continued for the child found to have a high blood concentration.

Division of Environmental Laboratories

The Division of Environmental Laboratories provides an analytical chemistry service in support of the Department's Divisions of Radiological Health, Sanitarian Services, Meat Inspection, Pesticide Project, and Blood Lead Program. Additionally, the Drug Laboratory provides an analytical service for all Arkansas law enforce-

ment agencies to assist them in controlling drug traffic in Arkansas.

The laboratories operate a 24-hour, 7-day-a-week Emergency Toxicology service to assist health care providers in determining the cause and treating emergency poisoning victims. This is a service conducted by the Department of Health in cooperation with the University of Arkansas Department of Medical Sciences.

(I dedicate this report to the public health staff's sincerity, devotion, and hard work.)

Medical Education Foundation for Arkansas

Robert Watson, M.D., President

The Medical Education Foundation for Arkansas has continued to reflect conscientious stewardship of the funds entrusted to it. Through cautious management these funds have continued to grow toward a meaningful goal. This is evidenced by a seven-year increase in total assets from \$33,000 in 1971 to \$80,000 in 1976. Interest income and memorial contributions have increased from \$1,450 in 1971 to \$4,643 in 1976. All along, your Foundation has followed the plan to "spend a little and save a little," toward eventually building a self-perpetuating fund.

This goal is now being approached. Following consultation with the Medical School, the Liaison Committee with the medical students and others as recommended by the Reference Committee of 1975, a trial series of quarterly lectures, beginning this year, are to be presented at the Medical Center. This series of lectures is to be known as being of Arkansas State Medical Society sponsorship. They are to be presented by nationally credible speakers on subjects common to the interests of students at differing levels of training. The selection of speakers and the choice of subject is made by a joint committee from the Department of Student Education and the Medical Educational Foundation. As continued funds accumulate, additional means of bettering medical education in Arkansas will be developed.

Report from the Arkansas Medical

Political Action Committee

Kemal Kutait, M.D., Chairman

Since 1976 was an election year, more individual members of Ark-PAC expressed interest in the activities of the committee. Ark-PAC contributed to several political campaigns on the

State level and to one campaign on the National level.

There were 1618 dues-paying members of the Arkansas Medical Society in 1976. Ark-PAC had 128 physician members for 1976 and 90 physicians' spouses were members. More support of the Medical Political Action Committee by physicians is needed. PAC achieves effectiveness by combining small individual contributions of the membership into one sizable contribution to a candidate's campaign. As long as our numbers remain small, we have limited effectiveness.

Physicians are also reminded that you have a further obligation for individual involvement in politics on a local level. Your obligations cannot be totally fulfilled by joining Ark-PAC; you should also contribute time and money in your local area. PAC funds are limited; it is not possible to contribute to every political candidate. Physicians and their families must help elect legislators who are aware of the current crises in health care legislation and who are ready to back our stand.

The treasurer of Ark-PAC, W. P. Phillips of Fort Smith, is commended for his action in getting all of the members of his group enrolled as sustaining members for 1977.

(A copy of Ark-PAC's financial report is filed with the Federal Election Commission and is available for purchase from the Federal Election Commission, Washington, D. C.)

House of Delegates Business Affairs

The following proposed revisions of the Constitution and By-Laws will be presented to the House of Delegates for the first reading at the meeting on Sunday, April 24th. The revised copy is in italics and the deleted portions are in parenthesis. Some portions shown as deleted may appear elsewhere as part of reorganization of some sections. Proposed revisions adopted by the 1977 meeting will be published twice in the Journal of the Arkansas Medical Society and presented to the House of Delegates for final vote at the annual convention in 1978.

Constitution

ARTICLE I. Name of the Society

The name (and title) of this organization shall be the Arkansas Medical Society.

ARTICLE II. Purposes of the Society

The purposes of this Society shall be:

1. To federate and bring into one compact organization the entire medical profession of the State of Arkansas and to unite with similar societies of other states to form the American Medical Association;
2. To extend medical knowledge and advance medical science;
3. To elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws;
4. To promote friendly intercourse among physicians;
5. To guard and foster the material interests of its members and to protect them against imposition;
6. To enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life; and
7. To maintain medical ethics and to secure compliance with the art of medical practice.

ARTICLE III. Component Societies

Component societies shall consist of those (county medical) societies which hold charters from this society *as provided in the By-Laws*; (provided, however, that there may be a chartered society known as the "Student, Intern, and Resident Society" as provided in the By-Laws.)

ARTICLE IV. Composition of the Society

Section 1. *Composition*

This Society shall consist of members, delegates and guests.

Section 2. (Active Membership) *Members*

The (Active) Membership of this Society shall comprise all the (active) members of its component societies. (Only such person is eligible for active membership in a component society as possesses the degree, Doctor of Medicine, and holds an unrevoked license to practice medicine and surgery issued by the Board of Medical Examiners which consists of members recommended by this Society. The eligibility requirements set forth in the preceding sentences are not to apply, however, to members in good standing in any component society at the time of the adoption of this Section [Adopted, House of Delegates, 1961 Annual Session] nor to the members of the

specially chartered "Student, Intern and Resident Society.")

Section 3. Delegates

Delegates shall be those members who are elected in accordance with the Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Society.

Section 4. Guests

Any distinguished physician not a resident of this State, who is a member of his own state society, may become a guest during any annual session on invitation of the officers of this Society, and shall be accorded the privilege of participating in all of the scientific work for that session.

ARTICLE V. House of Delegates

The House of Delegates shall be the legislative body of the Society, and shall consist of (1) delegates elected by the component county societies *as provided in the By-Laws*; (2) the councilors, and (3) ex-officio, the president, first vice president, president-elect, speaker, vice speaker, secretary, treasurer, and past presidents of the Society, provided, however, that the ex-officio members shall have the power of voting on all subjects except the election of officers. (and [4] one delegate from the "Student, Intern, and Resident Society.")

ARTICLE VI. Council

Section 1. Duties

The Council shall be the executive body of the House of Delegates and between sessions of the House shall exercise the power conferred on the House of Delegates by the Constitution and By-Laws. It shall constitute the Finance Committee of the House of Delegates.

Section 2. *Composition*

The Council shall consist of the councilors, the president, first vice president, president-elect, secretary and treasurer. The speaker and vice speaker of the House of Delegates and the past presidents shall be members ex-officio without vote. There shall be two councilors from each councilor district to serve staggered terms of two years each. All councilors shall have equal voting privileges. A majority of the voting members shall constitute a quorum. (Besides its duties mentioned in the By-Laws, the Council shall constitute the Finance Committee of the House of Delegates.)

Section 3. Executive Committee

The Chairman of the Council, the President, the President-elect and the Secretary shall constitute the executive committee of the Council. The Chairman of the Council shall serve as chairman of the Executive Committee. The Executive Committee shall have such powers and duties as provided in the By-Laws and as may be defined from time to time by resolution of the Council.

ARTICLE VII. Sections and District Societies

The House of Delegates may provide for a division of the scientific work of the Society into appropriate sections, and for the organization of such councilor district societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component societies.

ARTICLE VIII. Sessions and Meetings

Section 1.

The Society shall hold an Annual Session, during which there shall be held daily general meetings, which shall be open to all registered members and guests.

Section 2.

The place (for holding each Annual Session shall be decided by the House of Delegates two years in advance. The) and time for holding each Annual Session shall be decided (by the Committee on Arrangements of the Arkansas Medical Society and the president and the executive vice president) *by the Council.*

ARTICLE IX. Officers

(Section 1.)

The officers of this Society shall be a president, president-elect, three vice presidents, Speaker of the House of Delegates, Vice Speaker of the House of Delegates, a secretary, a treasurer, and twenty councilors (and an executive vice president). *Their qualifications and terms of office shall be as provided in the By-Laws.*

(Section 2.)

(The president-elect and vice presidents, the speaker and vice speaker, the secretary and treasurer shall be elected annually, each to serve a one-year term. On the expiration of his term as president-elect, that person shall automatically succeed to the presidency and shall serve as president for the ensuing year. Each year, ten councilors shall be elected to serve a two-year term.

All officers shall serve until their successors are installed.)

ARTICLE X. Funds and Expenses

Section 1.

Funds shall be raised by an equal per capita assessment on each component society except as provided in the By-Laws. The amount of the assessment shall be fixed by the House of Delegates (but shall not exceed the sum of \$50.00 per capita per annum except) on four-fifths vote of the delegates present.

Section 2.

Funds may also be raised by voluntary contributions, from the Society's publications and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Society for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Council before action is taken thereon.

ARTICLE XI. Referendum

Section 1.

A general meeting of the Society may, by a two-thirds vote of the members present, order a general referendum on any questions pending before the House of Delegates and when so ordered the House of Delegates shall submit such questions to the members of the Society, who may vote by mail or in person, if the members voting shall comprise a majority of all the members of the Society, a majority of such vote shall determine the question and be binding upon the House of Delegates.

Section 2.

The House of Delegates may, by a two-thirds vote of its own members, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding upon the House of Delegates.

ARTICLE XII. The Seal

The Society shall have a common seal, with power to break, change or renew the same at pleasure, by action of the House of Delegates.

ARTICLE XIII. Amendments

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates present at any annual session, provided that such amendment shall have been presented

in open meeting at the previous annual session, and that it shall have been published twice during the year in a bulletin or Journal of this Society.

By-Laws

CHAPTER 1. Membership

Section 1. *Membership in Component Societies*

(A) *Membership in this Society shall be by membership in one of its component societies.*

(Section 1) (B)

The name of a physician on the properly certified roster of members of a component society which has paid its annual assessment shall be prima facie evidence of membership in this Society.

Section 2. *Membership Classifications*

(A) *Active Membership*

Active membership of this Society shall be limited to persons who possess the degree of Doctor of Medicine and who hold an unrevoked license to practice medicine and surgery issued by the Arkansas State Medical Board. Such members shall have the right to vote, hold office, and all other privileges of membership in this Society.

(Section 4) (B) *Life Membership*

An active member who (shall have attained his eightieth year and shall have been a member of his county medical society in Arkansas or elsewhere in the United States continuously since beginning the practice of medicine, or who for fifty years shall have been continuously a member of his county medical society in Arkansas or elsewhere in the United States, shall upon establishing the above facts to the satisfaction of his county medical society, and upon the recommendations of such society, be granted the status of a Life Member.) *has continuously been a member of organized medicine and has either (1) attained age seventy-five or (2) practiced forty-five years shall be eligible for life membership and, upon the recommendation of his component society, shall be granted such status by the House of Delegates. (Such member shall enjoy full membership privileges and shall be exempt from the payment of further dues or assessments.) Life members shall have the right to vote, hold office, and all other privileges of membership in this Society.*

(C) *Emeritus Membership*

An active member who has continuously been a member of organized medicine for less than

forty-five years and who has fully retired from the practice of medicine shall be eligible for Emeritus Membership. Such membership shall be granted by the House of Delegates upon the recommendation of the member's component society. Emeritus members shall not have the right to vote or hold office, but shall have all other privileges of membership in this Society.

(Section 5) (D) *Affiliate Membership*

An active member in good standing in his (county) component society may (upon the recommendation of such society) be granted affiliate membership (with full voting and other privileges) where one or more of the following conditions exist: (retirement from active practice) physical or other disability of a character preventing the practice of medicine, a serious and prolonged illness, or financial reverses. Affiliate membership shall be on an annual basis only and a member must be recommended each year for such special status by (the secretary and president of) his (county) component society following a review and reassessment of his particular situation. An affiliate member shall enjoy full membership privileges (and shall be exempt from the payment of dues and assessments during the year in which he is granted such status, and a certificate of membership shall be issued to him for such year.) *except that he shall not have the right to vote or hold office.*

(Section 7) (E) *Military Members*

(A. Regular members of the Arkansas Medical Society who are in) *An active member in good standing in his component society who enters the service of the armed forces of the United States, not as a career officer(s), may be classified as a military member(s), and carried on the roll(s) of (their) his (respective county societies) component society as such. (Military members shall have a waiver of dues during the time of service, provided that they are in good standing at the time they entered the armed forces. Military members shall enjoy full membership privileges and certificates of membership shall be issued to them each year.)*

(B. Young physicians going from internship or residency to military service shall be granted military membership with dues exemption, provided the request for such membership is transmitted through a component society. Such military membership shall be on an annual basis only. The requirements for active membership

prior to exemption shall be waived for such military members. Such members shall enjoy full membership privileges except that they may not vote or hold office, and certificates of membership shall be issued to them. This section shall not be construed to mean that military membership may be granted to those physicians who enter military service after a period of active practice during which time they were not members of the Society.)

A physician entering service of the armed forces of the United States, not as a career officer, upon completion of internship or residency training shall be eligible for military membership upon the request of a component society.

Military members shall enjoy full membership privileges except that they shall not have the right to vote or hold office.

(F) Intern and Resident Members

Physicians licensed to practice medicine and surgery in this State who are engaged in filling intern or residency appointments in approved hospitals shall be eligible for membership in this Society. Such membership shall end with termination of this status. Such members shall enjoy the rights and privileges accorded active members except that they shall not hold office or chair committees.

(G) Student Members

Students enrolled in an approved medical school shall be eligible for student membership in this Society. Student members shall enjoy the rights and privileges accorded active members except that they shall not hold office or chair committees.

Section 3. Dues Exemption

Life, Emeritus, Affiliate, Military, Intern and Resident and Student members shall be exempt from the payment of dues and assessments.

Section (2) 4. Suspension or Expulsion

Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Society, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Section (3) 5. Meeting Registration

Each member, each member chosen as a delegate, and each guest in attendance at an annual

session of the Society shall register in such manner as may be provided by the (secretary) executive vice president, giving his name, address, and the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge which shall be evidence of his right to all the privileges of membership at that session. No member shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

Section 6. Continuing Medical Education

Continued membership in the Society is dependent upon compliance with continuing medical education requirements as specified below:

(A) Classification of Members affected

All members of the Society will comply with this charge, except those retired from practice, those still engaged in their formal medical or specialty education, non-resident members and those in full-time administrative positions. Those members unable to fulfill requirements because of impaired health or extenuating circumstances may be exempt on a temporary basis by the Committee on Continuing Medical Education.

(B) Central Authority

The Committee on Continuing Medical Education will be charged with the determination of the requirements for maintaining membership in the Society. Their initial determination as well as any changes recommended must be submitted to the House of Delegates for approval. Alterations in the number of hours of continuing medical education required may be made at any regular meeting of the Society by the House of Delegates. The Council will serve as an arbitration committee if a decision of the Committee on Continuing Medical Education is questioned.

(C) Acceptable Alternate Plans

Alternate plans of acceptable requirements which would be considered equal to or exceeding the requirements established by the Committee on Medical Education and the House of Delegates would include:

- (1) Compliance with the requirements for the Physician's Recognition Award of the American Medical Association;*
- (2) Compliance with the continuing educa-*

tion requirements of the American Academy of Family Physicians;

(3) *Documentation of recertification by any specialty board provided the physician limits his practice to the definition of the specialty;*

(4) *The continuing medical education requirements of specialty societies other than the American Academy of Family Physicians, should such become established. Such programs would be subject to review by the Committee on Medical Education prior to their acceptance.*

(D) *Three-year continuum*

Each member subject to continuing medical education requirements shall have three years to complete the required hours. The three-year continuum begins January 1 of the initial year.

CHAPTER II. Annual and Special Sessions of the Society

Section 1. The Society shall hold an annual session at such place as has been fixed by the (House of Delegates) Council at the annual session two years in advance.

Section 2. Special meetings of either the Society or of the House of Delegates shall be called by the President on petition of the Council, twenty delegates or fifty members.

(Section 3. In the event the previously selected place is unable to be host to the Annual Session, the meeting place may then be designated by the Council.)

CHAPTER III. General Meetings

Section 1. All registered members may attend and participate in the proceedings and discussions of the general meetings and of the Section. The general meeting shall be presided over by the president or by one of the vice presidents, and before them shall be heard the address of the president and the orations, and such scientific papers and discussions as may be arranged for in the program.

Section 2. The general meetings may recommend to the House of Delegates the appointment of committees or commissions for scientific investigations of special interest and importance to the profession and public.

CHAPTER IV. House of Delegates

Section 1.

The House of Delegates shall meet on the first day of the Annual Session. It may adjourn from time to time as may be necessary to complete its business; provided that its hours shall not conflict (as little as possible) with the general meetings.

Section (1) 2.

The order of business shall be arranged as a separate section of the Annual Session program.

Section (1) 3.

The House of Delegates shall establish its own rules of procedure.

Section 4. Items of Business

(A) All reports and resolutions received by the executive vice president sixty days prior to the annual meeting of the House of Delegates of this Society shall be printed in the Journal of the Arkansas Medical Society in the month preceding the meeting.

(B) All reports, resolutions, and other items of business received by the executive vice president twenty days prior to a meeting of the House of Delegates shall be included in the meeting agenda.

(C) Any item of business not submitted to the executive vice president twenty days prior to the meeting of the House of Delegates must have a two-thirds consent of attending delegates for introduction at such session.

Section 5. Reference Committees

(A) The Speaker of the House of Delegates shall appoint an appropriate number of reference committees from the membership of the House of Delegates. The chairman shall be appointed by the Speaker. The reference committees shall serve only during the convention for which they are appointed.

(B) All reports of committees, reports of officers, and resolutions submitted for consideration of the House of Delegates shall be referred to a reference committee, unless otherwise provided in these By-Laws, or unless otherwise ordered by a two-thirds vote of the House of Delegates.

(C) The reference committee shall hold an open hearing at which any member of the Society may speak on proposals before the committee.

(D) *The reference committee shall recommend to the House of Delegates an appropriate course of action on each proposal referred to the committee.*

Section (2) 6. Representation of Component Societies

(A) Each (component) *regular county society* shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, provided that its annual report and assessments are in the hands of the (secretary) *executive vice president* by March 1st of each year. Each *county society*, however, regardless of its number of members, which has complied with this section, shall be entitled to one delegate.

(B) *The component society composed of intern and resident members shall be entitled to one delegate to the House of Delegates.*

(C) *The component society composed of student members shall be entitled to one delegate to the House of Delegates.*

Section (3) 7. A majority of the delegates registered shall constitute a quorum.

Section (4) 8. (It) *The House of Delegates* shall, through its officers, council and otherwise, give diligent attention to and foster the scientific work and spirit of the Society, and shall constantly study and strive to make each annual session a stepping stone to future ones of higher interest.

Section (5) 9. It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent on the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

Section (6) 10. It shall make careful inquiry into the condition of the profession of each county in the state, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the state who is reputable and

eligible has been brought under medical society influence.

Section (7) 11. It shall encourage postgraduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

Section (8) 12. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the constitution and by-laws of that body.

Section (9) 13. It shall divide the state into councilor districts, specifying what counties each district shall include, and, when the best interest of the Society and profession will be promoted thereby, organize in each a district medical society, and all members of component (county) societies shall be members in such district society.

Section (10) 14. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Section (11) 15. It shall approve all memorials and resolutions issued in the name of the Society before they shall become effective.

Section (12) 16. In case of vacancy in the office of delegate, the House of Delegates shall have the authority to seat any member of that county society in attendance at said meeting as delegate, with full right to perform all the duties of that office.

CHAPTER V. Election of officers

Section 1. Nominating Committee

(Section 2. Immediately after) (A) *Prior to adjournment of the first meeting of the House of Delegates at each annual session, the delegates from the component societies of each councilor district shall meet, the councilor not subject to re-election acting as chairman, and select one delegate from each district to form a committee on nominations. This committee shall consist of ten delegates, one from each councilor district. It shall meet and organize by selecting a chairman and secretary. It shall be the duty of this committee to consult with members of the Society and to hold one or more meetings at which time the best interest of the Society and of the*

profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the names of two or more members for the office of president-elect and of one member for each of the other offices to be filled at the annual session. No two candidates for president-elect shall be named from the same county.

(Section 4) (B) The report of the Nominating Committee shall be the first order of business of the House of Delegates, after reading of the minutes, on the last day of the annual session.

Section (6) 2. Nothing in this Chapter shall be construed to prevent additional nominations being made by members of the House of Delegates.

Section (7) 3. Any person known to have solicited votes for or sought any office within the gift of this Society shall be ineligible for any office for two years.

Section (7) 4. No member shall be eligible to any office of this Society who is not in attendance at the meeting at which the election is held.

Section (5) 5. The election of officers shall be the second order of business of the House of Delegates on the last day of the Annual Session.

Section (3) 6. *Election by Ballot*

All elections shall be by ballot, except where there is only one candidate, when election may be made by acclamation, and a majority of the votes cast shall be necessary to elect.

Section 7. Each year, ten councilors shall be elected to serve a two-year term; all other terms of office are for one year. All officers shall serve until their successors are installed.

Section 8. On the expiration of his term as president-elect, that person shall automatically succeed to the presidency and shall serve as president for the ensuing year.

Section 9. *Vacancy in Presidency*

In the event of the death or removal of the president, the president-elect shall succeed to the presidency to serve the remainder of that year and the ensuing year.

Section (1) 10. *Vacancy in office of president-elect*

In the event of the death or removal of the president-elect or his inability to serve, the

House of Delegates shall meet within thirty days in a special session or otherwise, called by the president, to nominate and elect a president-elect, provided that such death, removal or inability to serve shall occur not less than sixty days prior to the annual session, in which event the election shall be at the forthcoming annual session.

Section 11. Councilor vacancy

In the event of the death or resignation of a district councilor, the Council shall appoint a member of the district to fill the unexpired term. The remaining councilor for the district shall confer with members in the district and make nominations for the vacancy to the Council.

Section 12. Vacancy in office of Secretary or Treasurer

In the event of a vacancy in the office of the secretary or of the treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VI. Duties of Officers

Section 1. *President*

The president shall preside at all meetings of the Society and shall appoint all committees not otherwise provided for. He shall deliver an annual address at such time as may be arranged, and shall perform such duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the councilors in building up the county societies, and in making their work more practical and useful.

Section 2. *President-elect*

The president-elect shall be a member of the Council and the House of Delegates. It shall be his duty to assist the president in visiting the component and district societies, and to familiarize himself with, and prepare himself for, the performance of his duties when he shall have succeeded to the presidency of the Society.

Section 3. *First Vice President*

The first vice president shall assist the president in the discharge of his duties. In the event of the president's temporary inability to serve, the first vice president shall serve in his stead.

The vice presidents may be assigned by the president of the Society as ex-officio members of certain committees of the Society. The vice

presidents' responsibilities will be to stimulate, to guide, to maintain liaison, and to otherwise assist the assigned committees and their respective chairmen in the performance of their activities. In no instance will the vice president usurp or supplant the committee chairman in his responsibilities. The vice president shall not have a vote in the affairs of the committees to which he is assigned under provisions of this section.

Section 4. *Treasurer*

The treasurer shall give bond in the sum as directed by the Council. He shall demand and receive all funds due the Society, together with bequests and donations. He shall pay money out of the treasury only on a written order of the (secretary) *executive vice president*; he shall subject his accounts to such examinations as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Section 5. *Secretary*

The secretary, in case of vacancy in the office of executive vice president, shall assume the duties of that office pending the filling of the vacancy, and shall perform such other duties as are imposed by the Constitution and By-Laws. He shall be the scientific and professional advisor of the executive vice president, and shall assist the executive vice president concerning all matters without the jurisdiction of one not holding the degree of Doctor of Medicine. The secretary, as defined by the Constitution, shall be known as the Constitutional Secretary. (and shall give bond in the sum as directed by the Council. The amount of his salary shall be fixed by the Council.)

Section 6. (7) *The Speaker of the House*

The speaker of the House of Delegates shall preside at the meetings of the House of Delegates and shall perform such duties as custom and parliamentary usage require.

Section 7. (8) *The Vice Speaker*

The vice speaker shall officiate for the speaker in the latter's absence or at his request. In case of death, resignation, or removal of the speaker, the vice speaker shall officiate during the unexpired term.

(Section 9.)

(The executive vice president shall be the

directing manager of the Society's headquarters and the Journal offices, and shall supervise the work of all salaried employees in the Society's offices. Such supervision shall be subject to directives from the House of Delegates, the Council, the Executive Committee and the President of the Society. He shall discharge the administrative functions of the Society not within the duties of other officers or of committees to perform. He shall assist, at their request, all officers and committees, and shall keep himself informed in regard to non-professional matters affecting the medical profession, for the purpose of keeping himself qualified to perform the services herein mentioned. He shall be responsible for the execution and carrying out of the policies of the Society and in that connection shall perform all specific tasks committed to him by the committees, the Council, and the officers of the Society. The amount of his salary shall be fixed by the Council and he shall give bond in the same as directed by the Council.)

Section 8. *Councilors*

Each councilor shall be organizer, peacemaker and censor for his district. The two councilors in each district shall be designated "senior" and "junior" on the basis of length of tenure.

It is recommended that the councilors in each district call a meeting of the members in the district at least once each year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and for informing, improving, and increasing the knowledge and zeal of the component societies and their members.

The councilors shall jointly prepare and submit to the Council prior to the Annual Session a written report of their work and of the condition of the profession within their district.

The necessary traveling expenses incurred by each councilor in the line of the duties herein imposed may be allowed on submission of a properly itemized statement.

CHAPTER VII. Council

Section (3) 1. Power and Duties

A. The Council shall be the executive body of the House of Delegates and between annual sessions exercise the power conferred on the House of Delegates by the Constitution and By-Laws. It shall consider all questions involving

the rights and standing of members, whether in relation to other members, to the component societies, or to this society. All questions of an ethical nature brought before the House of Delegates or the general meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members of component societies, on which an appeal is taken from the decision of an individual councilor.

B. The Council shall be responsible for the conduct of all the business affairs of the Society. It shall employ a chief executive officer who shall be known as the executive vice president.

(a) The executive vice president shall be responsible for implementation of policies of the Society and conducting affairs of the Society under direction of the Council and its Executive Committee, the House of Delegates and the president. The executive vice president shall be the directing manager of the Society's headquarters office and the Journal office, and shall supervise the work of all salaried employees in the Society's offices. (Such supervision shall be subject to directives from the House of Delegates, the Council, the Executive Committee and the President of the Society.) He shall discharge the administrative functions of the Society not within the duties of other officers or of committees to perform. He shall assist, at their request, all officers and committees, and shall keep himself informed in regard to non-professional matters affecting the medical profession, for the purpose of keeping himself qualified to perform the services herein mentioned. (He shall be responsible for the execution and carrying out of the policies of the Society and in that connection shall perform all specific tasks committed to him by the committees, the Council and the officers of this Society.) The amount of his salary shall be fixed by the Council and he shall give bond (in the same) as directed by the Council.

Section (4) 2. *Organizing Component Societies*

The Council shall have authority to organize the physicians of two or more counties into societies, to be suitably designated so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Section (5) 3. *Publications and Records*

The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Society and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the treasurer of the Society. It shall annually audit the accounts of the treasurer and secretary and other agents of this society and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Society during the year, and the amount of all other property belonging to the Society under its control, with such suggestions as it may deem necessary. (In the event of a vacancy in the office of the secretary or of the treasurer, the Council shall fill the vacancy until the next Annual Session.)

Section (1) 4. *Meetings*

The Council shall meet on the first day of the Annual Session and daily during the session and at such other times as (necessity may require) necessary, subject to the call of the chairman or on petition of three councilors. It shall meet on the last day of the Annual Session of the Society to organize and outline the work for the ensuing year. It shall elect a chairman.

Section (1) 5. *Reporting*

The Council shall, through its chairman, make an annual written report to the House of Delegates.

Section 6. *Bonds*

The Council shall have authority to accept or reject all bonds.

Section 7. *Committees*

(A) Executive Committee

The Chairman of the Council, the President, the President-elect and the Secretary shall constitute the executive committee of the Council. The Chairman of the Council shall serve as chairman of the Executive Committee. The Executive Committee shall have the power and authority to act for the Council between meetings of that body; all actions of the Executive Committee shall require approval or ratification of the Council. The Executive Committee shall consider matters referred to it by officers of the

Society and shall report its findings or recommendations to the Council.

(B) Council Committees

The chairman shall, with concurrence of the Council, appoint such committees as are necessary to carry out the duties assigned to the Council by the By-Laws and House of Delegates. At the discretion of the Council, the committees shall be of three types: (1) standing committees with unlimited membership tenure; (2) standing committees with staggered membership terms; and (3) ad hoc committees as may be warranted for specific purposes.

Section 8. Appointments to fill vacancies

The Council shall, by appointment, fill any vacancy in office not otherwise provided for which may occur during the interval between annual meetings of the House of Delegates.

CHAPTER VIII. Committees

Section 1.

(A) The standing committees of this Society shall be as follows:

1. Committee on Cancer Control
2. Committee on Medical Legislation/
Sub-Committee on National Legislation
3. Committee on Public Health/Sub-Committees on Rural Health, Maternal and Child Welfare, Tuberculosis, Heart Association, Liaison with Nursing Profession, etc.
4. Committee on Continuing Medical Education
5. Committee on Hospitals/Hospital liaison and Arkansas Hospital Association
6. Committee on Public Relations/Speakers' Bureau, Liaison with Auxiliary, Liaison with Medical Assistants, Civilian Defense, etc.
7. Committee on Annual Session (Committee on Scientific Work and Exhibits)
8. (Committee on Veterans Administration Affairs)
9. Committee on Insurance
10. Committee on Medicine and Religion
11. Committee on Aging
12. Committee on Mental Health

(B) Additional committees shall be considered sub-committees of the appropriate standing com-

mittee and one member of the standing committee shall be a member of the sub-committee.

(C) Unless otherwise provided, these committees shall be appointed by the president for three-year staggered terms. The committee shall consist of not less than six members each, with each president appointing two members for a three-year period. Any vacancies through death, removal or resignation may be filled by the president at the time the vacancy occurs and for the unexpired term of the vacancy. The president and the secretary shall be ex-officio members of all committees.

Section 2. *The duties of the committee shall be as follows:*

(Section 2) Committee on Cancer Control. Shall represent the Society in all activities concerned with cancer in the State. Shall directly supervise the activities of the Cancer Control Committee of the Arkansas Medical Society Auxiliary. Shall cooperate with all agencies within the State of Arkansas dedicated to the problem of cancer.

(Section 3.)

(The Committee on Scientific Work shall consist of six members of which the secretary shall be one. Subject to the instructions of the House of Delegates, this committee shall determine the character and scope of the scientific program for each Annual Session, determining the order in which papers and discussions shall be presented.)

(Section 4.) Committee on Medical Legislation. Shall represent the Society in all legislative practice. It shall keep in touch with professional and public opinion and maintain active relations with the Department of Public Affairs of the American Medical Association. It shall, at all times, endeavor to shape and guide legislation with a view to securing the best results for the whole people. It shall strive to organize professional influence so as to promote the general good of the community in local, state, and national affairs and elections. During sessions of the General Assembly, it shall keep itself informed as to the bills that are introduced, and shall inform the members of the Society through its Journal or special bulletins to the end that legislation inimical to the medical profession and the public shall be defeated, and legislation fostering the interest of the public health and med-

ical practice shall be enacted into law.

(Section 5. The Committee on Health and Public Instruction)

Committee on Public Health. Shall represent the Society in those affairs having for their object the improvement in public and personal health, the prevention of epidemics, and the instruction of the people. It shall maintain close relations with the Board of Health, the State Health Officer, and the various health officials, assisting in the adoption of public health programs, the enforcement of sanitary laws, and to exercise leadership in the health problems of school children through a sub-committee on physical fitness and school health. As occasion demands, or when thought advisable, it shall supervise the preparation of articles of timely interest for publication in the newspapers or for broadcasting over the radio for the instruction of the public.

(Section 6.)

The Committee on *Continuing Medical Education* shall be responsible for consideration of all questions pertaining to medical education. It shall maintain close relations with the officials and faculty of the University of Arkansas College of Medicine, and Arkansas Academy of Family Physicians, and other groups interested in maintaining and improving medical education in our State institutions. It shall foster continuous efforts to increase excellence in the system of postgraduate education to serve the cause of medicine and to assure the public of continuing improvement in the postgraduate training of physicians in practice. (The committee shall consist of ten members, one from each councilor district.)

The Committee shall determine continuing medical education requirements for maintaining membership in the Society, as provided in these By-Laws, and shall establish methods of reporting in compliance with the continuing medical education requirements.

The Committee on Continuing Medical Education shall consist of seven members appointed by the president as follows: The dean or a representative of the University of Arkansas College of Medicine; one representative of the Arkansas Academy of Family Physicians from three nominations by that group; one family physician member of the Society selected by the president;

one surgeon selected from three nominees from the Arkansas Chapter of the American College of Surgeons; one internist selected from three nominations from the Arkansas Chapter, American College of Physicians, and two other members of the Society, not in the specialty categories listed above, selected by the president. The committee chairman shall be named by the president.

(Section 7.)

Committee on Hospitals. The Committee on Hospitals shall have referred to it all questions pertaining to hospitals and their operations; hospitalization of patients and hospital-physician relationships.

(Section 8.)

Committee on Public Relations. The Committee shall have referred to it all questions wherein the medical profession as represented by the Society is called upon for advice, for participation in private or public affairs and projects not coming within the duties outlined for the other committees. It shall be the publicity committee of the Society and shall have charge of all publicity issued in the name of the Society. The sub-committee on professional relations shall function under this committee.

(Section 9.)

Committee on Annual Session. The committee (on Scientific work and exhibits) shall determine the character and scope of the scientific (proceedings) *program* for each annual session. It shall prepare a scientific program for each annual session. It shall solicit and collect material from institutions and individual physicians of the State that is of scientific interest. This it shall arrange and exhibit at each annual session. It should particularly strive to obtain material that will more fully illustrate the papers presented in the general meeting of the Society.

(Section 11.)

The Committee (on Arrangements for the Annual Session) shall provide suitable accommodations for the meeting places of the Society and the House of Delegates, the scientific exhibits, the committees, and shall have general charge of all arrangements. Its chairman shall report an outline of the arrangements to the (secretary) *Executive Vice President* for publication in the program and shall make additional announcements during the session as occasion may require.

(Section 10.)

Committee on Insurance. The Committee on Insurance shall deal with all matters pertaining to insurance, including liaison with Blue Cross-Blue Shield.

(Section 12.)

The Committee on Medicine and Religion shall work to create and enhance communication between physician and clergyman which will lead to the most effective care and treatment of the patient in which both are interested. It shall study the areas in which there is or may be continuing correlation involving medicine and religion.

(Section 13.)

The Committee on Aging shall study the problems of the aged and the aging. It shall provide leadership and initiative in meeting the health and medical care requirements of older persons. It shall foster the development of effective methods of achieving the best possible social and spiritual atmosphere for the elderly.

(Section 14.)

The Committee on Mental Health shall study the problems of the mentally ill. It shall foster development of programs to improve the care and treatment of mental patients and mental retardates.

CHAPTER IX. (COUNTY) COMPONENT SOCIETIES

Section 1. *Charters for Component Societies*

(A) All (County) component societies now in affiliation with this Society or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application and submission of their Constitution and By-Laws, receive a charter from and become a component part of this Society.

(Section 2.)

(B) As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

(Section 3.)

(C) Charters shall be issued only on approval of the Council, and shall be signed by the presi-

dent and secretary of this Society. Upon the recommendation of the Council, the House of Delegates may revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Section 2. *Component organization*

(Section 4.)

Only one component medical society shall be chartered in any county, *except in the county where the University of Arkansas College of Medicine is located. In that county there may be, in addition to the regular county medical society, one component society for interns and residents and one component society for medical students.* Where more than one component society exists in any other county, friendly overtures and concessions shall be made, with the aid of the councilor for the district if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Section (5) 3. *Membership Qualifications*

Each (county) component society shall be the judge of the qualifications of its own members, but as such societies are the only portals of this Society and to the American Medical Association, every reputable (physician) *person* who possesses the qualifications for membership required by (Article IV, Section 2) *Chapter I, Section 2* of these By-Laws, and who does not practice or claim to practice nor lend support to any exclusive system of medicine, shall be eligible to membership. No physician or surgeon who solicits patients or business for himself, or for an association or other organization of which he is a member, or by which he is employed, or in which he is interested, shall be eligible for membership in this Society, and no physician who works for, is employed by, or is interested in, any association or organization which solicits patients, members or physicians, shall be eligible for membership in this Society. Any member of the Society who shall hereafter violate any of the provisions hereof shall be expelled from the Society. Before a charter is issued to any county society, full and ample notice shall be given to every physician in the county to become a member.

Section (6) 4. *Appeal to the Council*

Any physician who may feel aggrieved by the

action of the Society of his county in refusing him membership or in censoring, suspending, or expelling him, shall have the right to appeal to the Council, and its decision shall be final except that a county society shall at all times, be permitted to appeal or refer questions involving membership to the House of Delegates of the Arkansas Medical Society for final determination. That the Council may be aided in rendering just decisions, it is necessary that the By-Laws of each component society provide in detail the routine to be followed in preferring charges and trying any member accused of and tried for any kind of unprofessional conduct.

(Section 7.) In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts; but in case of every appeal, both as a Board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Section (8) 5. *Transfers*

When a member in good standing in a component (county) society moves to another county in this State, he shall be given a written certificate of these facts by the secretary of his society, without cost, for transmission to the secretary of the society in the county to which he moves. Pending his acceptance or rejection by the society in the county to which he moves, such member shall be considered to be in good standing in the county society from which he was certified and in the State Society to the end of the period for which his dues have been paid.

Section (9) 6. *County Jurisdiction*

A physician living near a county line may hold his membership in that county society most convenient for him to attend, on permission of the component society in whose jurisdiction he resides.

Section (10) 7. *Efforts to Increase Membership*

Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Section 8. *Representation in House of Delegates*

(A) *Each regular county medical society shall be entitled to one delegate to the House of Delegates of this Society for each twenty-five members or major fraction thereof, provided that the society has complied with other provisions of these By-Laws, and provided that each component society shall be entitled to one delegate.*

(B) *The component society of interns and residents shall be entitled to one delegate to the House of Delegates.*

(C) *The component society of medical students shall be entitled to one delegate to the House of Delegates.*

(Section 11.)

(D) At some meeting in advance of the annual session of this society, each (county) component society shall elect a delegate or delegates to represent it in the House of Delegates (of this Society, in the proportion of one delegate to each twenty-five members and one for each major fraction thereof) *as provided in these By-Laws* and the secretary of the county society shall send a list of such delegates to the (secretary) *Executive Vice President* of this Society at least ten days before the annual session.

Section (12.) 9. *Responsibilities of Secretary*

The secretary of each component society shall keep a roster of its members, and of the non-affiliated (registered) *licensed* physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster, the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall endeavor to account for every physician who has lived in the county during the year.

Section (13.) 10. *Assessment*

The secretary of each component society shall forward its assessment, together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county, to the secretary of this Society on January 1, and not later than March 1 of each year.

Section (14.) 11. *Failure to Pay Assessment*

Any county society which fails to pay its as-

essment, or make the report required, on or before March 1, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Society or of the House of Delegates until such requirements have been met.

Section 12. Retention of Component Status

All members of the county society must be members of the State Society for the county society to retain its component status.

CHAPTER X. Miscellaneous

Section 1.

No address or paper before (the) *this* Society, except those of the president and orators, shall occupy more than thirty minutes in its delivery and no member shall speak longer than five minutes nor more than once on any subject, except by unanimous consent.

Section 2.

All papers read before the Society or any of the sections shall become its property. Each paper shall be deposited with the Secretary when read.

CHAPTER XI. *Parliamentary Procedure*

(Section 1.)

The deliberations of this Society shall be governed by parliamentary usage as contained in Sturgis Rules of Parliamentary Procedure, when not in conflict with this Constitution and By-Laws.

(Section 2.)

(All items expected to be considered at the

annual meeting of the House of Delegates of this Society must be printed in the Journal of the Arkansas Medical Society in the month preceding the annual meeting. All resolutions to be submitted to the House of Delegates at the annual meeting must be received in the office of the Executive Vice President twenty days prior to said meeting. Any new business proposed during the first session of the House of Delegates of this Society must have a two-thirds majority of the attending delegates voting for such introduction into this session. Any new resolutions or other new business proposed for introduction to this House of Delegates after the first session in each annual meeting must have two-thirds consent of attending delegates before its introduction).

CHAPTER XII. *Medical Ethics*

The Principles of Medical Ethics promulgated by the American Medical Association shall govern the conduct of members in their relation to each other and to the public.

CHAPTER XIII. *Amendments*

The House of Delegates may amend any chapter of these By-Laws by a two-thirds vote of the delegates present at any annual session, provided that each amendment shall have been presented in open meeting at the previous annual session, and that it shall have been published twice during the year in a bulletin or Journal of this Society, or sent officially to each component society at least two months before the meeting at which final action is to be taken.



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FORT SMITH, ARKANSAS

101st ANNUAL SESSION
ARKANSAS MEDICAL SOCIETY
LITTLE ROCK CONVENTION CENTER, APRIL 24-27, 1977

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A character all its own.



Valium (diazepam) is a benzodiazepine with a character all its own.

Pharmacologically, it has been described as more potent mg-per-mg than other available anxiolytic benzodiazepines. Pharmacokinetically, only Valium provides active *diazepam* as well as the active metabolites 3-hydroxydiazepam, desmethyldiazepam and oxazepam.

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Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

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British General Practice: A Visiting American Family Medicine Resident's View

Larry A. Green, M.D.*

The style and content of the encounter between the British patient and his general practitioner is described in terms of national statistics as well as specific events in one busy practice. Some perspective is offered of how the general practitioner fits into the entire health system, including how he is paid and how he is being educated for his tasks. A few personal reflections are included, attempting to complete a balanced image of British general practice as seen by a non-expert, but interested observer.

INTRODUCTION

In 1948, the year I was born in Oklahoma, the British nationalized their hospitals. Since then, the British have extended their proud history of world leadership into health affairs, via the famous national health service (NHS); and I stumbled into a family medicine residency that included elective time that could be spent "out of town." Ilkeston, England, 10 miles west of Nottingham, was out of town; so I grasped the opportunity by some English friends to observe the scene first hand. After I convinced the director of my residency that I was going to England "to examine the encounter between the patient and the British general practitioner (GP) and the systems which support it," he convinced *me* that not reporting my observations was irresponsible. Since family medicine residents behave responsibly, these observations are presented.

The Style and Content of the Encounter

The typical GP-patient encounter lasts 5-6 minutes¹ and occurs in the consulting room, where the doctor will be sitting at his desk, when the patient enters. After greetings, the patient takes a seat either opposite or to the side of the doctor and explains his problem. If the

doctor does not feel he can deal with the problem with the prescription pad, excuse-from-work pad, or employment insurance form he keeps before him, he may choose to examine the patient. The examination couch will be either in the same room or immediately adjacent via a side door. If laboratory investigation is required, some doctors do the test in the surgery (English for office), some collect a specimen and send it away, and others direct the patient to another facility, e.g. a local hospital. If consultation is desired *promptly*, the telephone is used to locate a consultant (hospital-based specialist) or his registrar (3rd to 10th year resident looking for a job). If consultation is desired *eventually*, appointments are requested, letters prepared, and the waiting period accepted. Most encounters conclude with the patient receiving a piece of paper of some sort and a "come back if you're not better."

Of all GP-patient encounters, 64% are for self-limiting, benign disorders with no risk to life or permanent disability, 15% for life-threatening diseases, and 21% for insurable chronic problems.¹ About 33% of all people consulting a GP do so for a social problem, and the remainder largely present respiratory, gastrointestinal, and skin disorders.

The GP and His Practice

In 1948 the GP was frozen out of the hospital empire and now has access to about 500 "GP hospitals," of which many are Victorian homes with 8-10 beds. He has maintained a separate, distant relationship with the government. He individually contracts with the government to provide certain services in the manner he deems appropriate. The Family Practitioner Committee in each Area (there are 4-5 areas in each of England's 12 health regions) assures fulfillment of

*The University of Rochester and Highland Hospital, Family Medicine Program, Rochester, New York 14620.

the contract and pays the GP with funds drawn directly from the Department of Health and Social Services (DHSS). What is expected of the state, the practitioner, and the patient is explicitly stated in the reorganization act of 1974, Statutory Instrument #160. The grievance mechanism is stated in Statutory Instrument #455, 1974.

As the agent of first contact for the 97% of the UK population registered in the NHS, the GP provides direct access into the entire system. He hopes the public will see him as a personal physician. He recognizes his niche is just above self-care and knows that even though 75% of his patients' symptoms are self-treated, the 25% presented to him will re-confirm the insoluble equation: Wants > Needs > Resources. There is one GP for every 2200 citizens, but his ranks are increasing as British born women and foreign born graduates enter practice (16% of all GP's were born overseas).²

As an individual contractor, he will participate in a health service that appears free to the patient at the point of encounter, but actually cost about 4000 million pounds in 1975, representing 11% of all public expenditure (education = 13%, social security = 18%, defense = 11%) and about 5% of the British GNP. Central taxation generates 80% of the money needed to cover this debt, while direct charges, national health insurance fees, and local taxes produce the remainder. Only 24% of this expenditure for health is directed into general practice services; and of that 24%, and 33% is for payments to GP's.¹

The GP gets a capitation, based on age, for the patients on his list (£2.15 for 0-64 years; £2.80 for 65-74 years; £3.45 for patients over 74). After 13 years in practice or the completion of a training scheme he gets an extra £550 per year. All GPs who practice in groups get £420 per year. If he agrees to work after 6 p.m., he gets an extra £475 per year, plus £0.43 for each patient after the 1000th on his list. Furthermore, for each home visit from 11 p.m. to 7 a.m., he gets a fee of £4.60. Services considered to be of special public service may be rewarded by a special fee, such as cervical cytology, for which the GP gets £2.30. For contraceptive advice he gets an extra £3.25. (The rapidity with which practices initiated pap smear programs after the government agreed to pay these extra fees documents that American doctors do not stand alone in their responsive-

ness to money. It also implies how a giant system can be made promptly responsive to achieve a particular health goal.) Prenatal care and delivery merit £33.25 per pregnancy. There are financial inducements to improve facilities, practice in under-served areas, and give vaccinations. 70% of salaries for staff (no more than two per GP) is assumed by the NHS, and the remaining 30% is tax exempt. There is a generous pension scheme and more.

I tired of searching for the equation that would tell me what the GP really earns and gave up, concluding that no two GP's are paid the same, and that the tax burden required to support social programs plus the devaluation of the pound were as significant as the nationalization of the health service in compromising the British GP's financial status vis a vis U. S. doctors.

Even though 58% of GP's also practice privately, no more than 5% have more than 100 private patients. Private practice pads the GP's income and operates as a safety valve for an overloaded system. (A vasectomy in the NHS may require an 18 month wait; privately — "next Thursday alright with you?") Some patients request private service for personal or traditional reasons, but others use their private status to assure prompt and special attention.

In 1948, 80% of GP's were in solo practice; but by 1971, 80% were in groups of two or more (partially explained by the emergence of government supported health centers). In 1967 only 30% of general practices used appointments, but this increased to 64% in 1972. Although the trend is away from home practices, 70% of GP's were still practicing in adapted residential premises in 1969. Almost 50% of practices have branch practices which clearly function to maintain list size. In 1971 only 41% of general practices had a nurse, 10% had an ECG machine, 34% had a microscope, 63% had a vaginal speculum, and only 35% had a hemoglobinometer.

A Day In the Life of a British GP

Tuesday, 26 August, 1975.

I. Morning Surgery 0830-1030: Since there were no appointments, the patients began to line up 45 minutes before opening time. They line up for their own doctor, but if one of his partner's line is very short, they shift quite promptly.

Once under way, I listened as the senior partner of the group interviewed and managed:

1. a 28-year-old jack hammer operator with an 8-week-old child and 8 weeks of coughing.
2. a 39-year-old laborer with foot pain since an industrial accident.
3. a 40-year-old laborer with a shoulder bursitis.
4. a 62-year-old retired miner with chronic bronchitis.
5. an 11-year-old girl with otitis media, wanting to go swimming.
6. a 5-year-old boy who wanted to be 8 years old; he had tinea corporis.
7. a 51-year-old man with a cervicobrachial syndrome.

I checked the waiting room, and there were 48 people in it. When they were all seen, we went visiting.

II. Home Visits and Special Activities 1030-1530: We first saw a 92-year-old fellow with bronchitis, and it was impressive how quickly his functional disability could be assessed, seeing him in his own home. Then we saw another man with bronchitis so severe that he could not walk even a few steps uphill. Next we visited a 75-year-old lady convalescing at home from a myocardial infarction, insisting that her garden needed tending, regardless of doctor's instructions.

We then slipped by the village hospital, used almost exclusively by the local GP's. We had tea with other local practitioners after seeing a few patients with scrapes and bruises who knew they could be seen at that time in the hospital's "casualty department." A pre-natal clinic at the local maternity home or a well-child clinic could have been next, but today it was more home visits.

III. Afternoon Surgery 1530-1730: Care in 5-6 minute aliquots continued as we saw:

1. a 26-year-old housewife on birth control pills, with migraine and hypertension.
2. an 11-year-old boy with lethargy and fatigue two weeks after his father died of myocardial infarction.
3. a 50-year-old housewife with low back pain to be followed in a week with a home visit.
4. a 40-year-old fellow who passed blood in his

stool after being seen three days earlier with abdominal pain.

5. a desperate, 24-year-old mother of three, weighing 80 pounds, needing contraception.
6. a 20-year-old bride-to-be with back pain, waiting to get married until she earned enough money to pay for a bed.
7. a 60-year-old literature teacher who decided to postpone his hearing problem and talk about American medicine when he learned I was from the U. S.

By 1815 the five-man practice had processed almost 300 encounters.

IV. Night Call: After dinner a few calls came in and we visited a 5-month-old baby with a cold and a 21-year-old mother with gastroenteritis. Then a 50-year-old Scot's wife called and said her husband had had chest pain for 16 hours. We arrived at his home at 2200. His subsequent course illustrates emergency care.

2215—Dr. S. left to call for ambulance and a hospital bed.

2225—Dr. S. talks with Dr. Smith at City Hospital.

2232—Heard ambulance coming.

2234—Ambulance arrived.

2237—Patient is in ambulance, receiving oxygen; departs.

2245—Patient is pain-free for first time in 16 hours.

2259—Arrived City Hospital.

2303—In CCU bed; no emergency department stop.

2310—X-ray taken; sister (i.e. nurse) and two CCU M.D.'s available.

2314—ECG taken; sister comforting wife in waiting area.

2325—Dr. Smith arrives.

2338—Working diagnosis is old DMI with probable new ASMI; stable.

2339—Wife and I leave for Ilkeston; patient stating he will be home tomorrow.

0004—Home; wife paid for taxi.

Reflecting over the day, I decided: (1) The home visit persists in England because patients are taught to expect it as a routine service, people live close together, and the doctors have fun

doing it. (2) The English equivalent of "take two aspirins and go to bed" is a home visit concluding with, "I'll give you something to make you better," after which the patient acquires from his chemist (pharmacist) an ineffective unrequired almost non-prescription requiring drug at NHS expense. (3) In general the British patient distinguishes himself from his American counterpart by preferring inaction to action and traditional responses to new technologically superior methods (or as one doctor said "leather and wood to steel and plastic"). (4) The American who claims the NHS destroyed the doctor-patient relationship has obviously been the victim of unworthy propaganda. Likewise the British chap who interrupted my dinner to protest "I could never practice in America—it's so corrupt" is equally misinformed. Until an assumed tolerance of the other side of the Atlantic's approach is established it is very difficult to understand each other. (5) I resolved to learn how the British prepare doctors for days like 26 August, 1975.

Vocational Training

Designed to prepare doctors for general practice, vocational training is the analogue of the American family medicine residency. In 1973 there were only 250 trainees, but this number is increasing. A typical trainee will have entered medical school at age 17 or 18, qualified five years later (i.e. got his M.D.), done two, six-month house jobs (our internship), and then entered the training scheme.

The scheme is managed by "course organizers" who are usually inspired GP's with liaisons with university and community. The three years are sharply divided between two years hospital and one year community experiences, in no certain order. In the hospital the trainee serves as a senior houseman on four six-month jobs, and depends upon consultant physicians for his education. In the community the trainee is assigned to a functioning general practice where a practicing trainer shares responsibility for his education. The trainee adopts a portion of the trainer's list of patients and works at a slightly slower rate; access to the trainer is available on request. All the trainees in a given scheme meet for a 2½-hour session each week for the entire three years to discuss pertinent material.

There are problems, of course. There is little

consensus as to what GP's should be doing. Some stress maximum clinical competence with common diseases and learning interventions with a high probability of effectively modifying disease. Others argue that is consultant's work, and GP's should enhance their practice with "pastoral" skills. While objectives are being formulated, everyone desperately hopes that selecting the proper topics to discuss now and then, plus selecting competent GP's to whom trainees can be exposed, plus guaranteeing hospital jobs in established specialties will assure an integrated experience, producing competent GP's.

The training programs could use more goodwill and money, but unfortunately appropriate use of available resources is subverted by a sinister triangle. At one corner is the NHS, willing to fund the program in return for trainees filling four six-month jobs in NHS hospitals. In a second corner is the GP with severely restricted access to hospital-based practice. At the third corner is mandatory vocational training beginning in 1977 and fully established by 1980 as a three-year scheme required to enter general practice or to change regions if the GP is already in practice. Thus, alternative training plans become unacceptable.

A cynic could argue only two types of medical graduates voluntarily seek vocational training in general practice: one is incompetent to pursue general practice independently; the other wants two years of guaranteed jobs at universities with reputations for high performances on the MRCP. Regardless of motives, the trainee now spends three of four post-doctoral years in hospitals, but will have very limited access to hospitals on entering practice.

Parting Thoughts

As the weeks went by, my note-taking diminished, and my own perceptions began to emerge.

On OB: It is slightly more than an illusion that the GP does obstetrics. The midwife does normal obstetrics, the obstetrician does abnormal obstetrics, and the GP sorts out the abnormal from the normal pregnancy.

On Quality Care: Quality medical care is permitted by, but not a function of, systems. It is a function of dedicated, individual physicians.

On Access to the System: What the dollar does

for controlling resources in America, the waiting list does in England. In America the uninsured and poor get hurt; in England, the chronically ill and elective surgical patients wait.

On the Worried Well: Clearly the NHS squanders its resources on the non-sick, who overload the system seeking the assurance that they are, indeed, not sick. Then by definition they are no longer at ease and, therefore, in need of medical care.

Back Home

Now that I am a few months away from the experience and time has faded many details, some larger perspectives are emerging. (1) I am impressed by the statistics the British generate, with denominators. (2) There is little doubt that socialists would prefer a totally state run and state controlled medical profession, that the medical profession will resist any such attempt, and that the GP's are much better organized to resist than the consultants. (3) Thinking men and women do not believe Britain can afford the

NHS at its current level, but they do not believe a government could survive abolishing it. (4) The GP will not transplant, because he needs his practice to continually inform him of who he is and what he does. (5) Because of my exposure to British GP's, I will make home visits in my practice, attempt to maintain a priority commitment to availability for whatever troubles my patients when it troubles them (not two weeks from Thursday at 3:15), and bask in the enormous freedom American doctors enjoy. (6) I perceive the major flaw in the NHS as the absence of incentive to be better; the inspired practitioner is inadequately rewarded. (7) I remain impressed and inspired by the fact that any person, including YOU, whether British or not, located within the confines of the UK, can receive all the medical care needed, however complex, without fear of financial disaster for — your signature. That is amazing!

1. All statistics not otherwise marked are extracted from: Report from General Practice, 16. Present state and future needs of general practice, edition, March, 1973, published by the Journal of the Royal College of General Practitioners.

2. Unpublished paper by Dr. John Skinner and Dr. Georges Lavolee.



Use of a Spray to Deliver Drugs to the Eye

James Sharp and Calvin Hanna*

INTRODUCTION

The topical administration of drops to the eye is an unpleasant procedure associated with significant burning, stinging, lacrimation and emotional ambivalence on the part of the patient. Such symptoms are due to drug solutions which contain not only drugs, but also preservatives, buffers and stabilizing materials. Because of such problems, different methods of topical drug delivery were investigated with the hope of overcoming the objectionable aspects of topically administered drops to the eye.

In order to pursue this objective, mydriatics were chosen for our investigation. It was found that mydriatics applied as a spray to either open or closed eyes caused mydriasis equal to that of drops; furthermore, this route of drug delivery is less irritating and causes less ambivalence on the part of the patient.¹

Since that time, the ophthalmic spray has been used in our clinics with children and adults. It has continued to be a useful device for drug delivery and has had a good reception among ophthalmology residents and some ophthalmologists in private practice.

MATERIALS AND METHODS

In our clinics, an ophthalmic spray (Figure 1) has been used to dilate pupils for examination and to produce cycloplegia. Included in our observations was a prospective study of 150 patients of all ages, who were given drops in one eye

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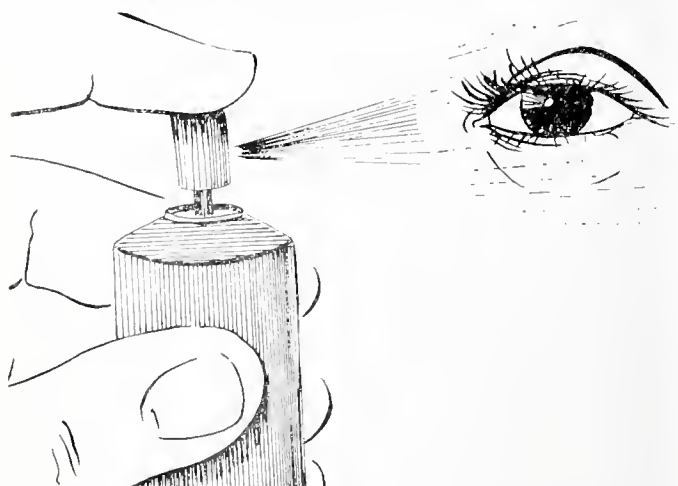


Figure 1.

The sprayer is used from a distance of two inches from the eye.

while receiving spray of the same drugs to the other eye. The spray was applied to either an open or a closed eye.

We routinely use three drugs for mydriasis: 10% phenylephrine hydrochloride (Neosynephrine — Winthrop), 1% tropicamide (Mydriacyl — Alcon), 1% cyclopentolate (Cyclogyl — Alcon). Two mixtures of these drugs were used; the first used was a 1:1 solution of 10% phenylephrine and 1% tropicamide which was used routinely in adults. The other solution was composed of equal volumes of all three drugs and was used mainly in children.

The applicator was similar to Windex® or Mistura® sprayers. In daily clinical activities, the spray was applied only to closed eyes. The patients were then instructed to blink; if medication reached the tear film, there would be mild stinging. After blinking, the patient was allowed to blot off excess solution.

RESULTS

There is no statistically significant difference between the drugs given as drops or as a spray (Figure 2). If the eyelids were sprayed while closed, there was as much mydriasis as with drops if the eyes were opened before the lids were blotted (Figure 3).

Subjectively, the irritation of the spray directed to the closed eye is much less than with drops. Furthermore, the reaction may be delayed

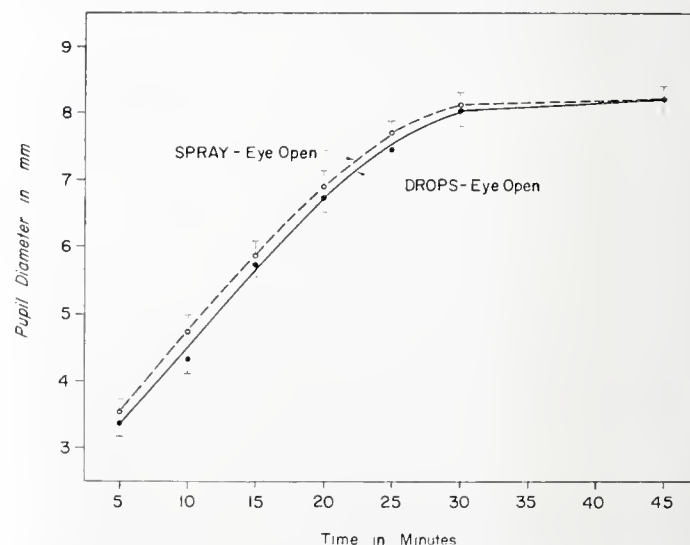


Figure 2.

This graph presents the data on 20 patients, comparing the mean pupil measurements of eyes which received drops while open, as compared to the eyes which received the spray while open. The brackets represent the standard error.

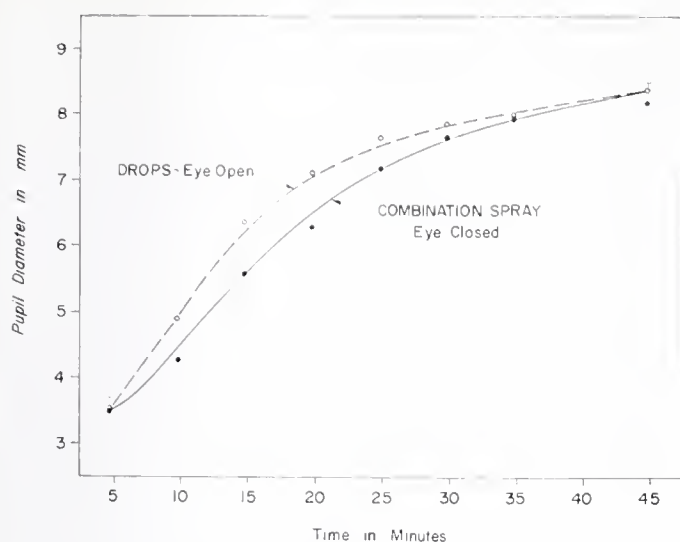


Figure 3.

This graph presents the data on 10 patients, comparing the mean pupil measurement of eyes which received the spray while closed, as compared to the eyes which received the drops while open. The brackets represent the standard error.

several moments after the patient blinks. It must be stressed, there will be a sensation of discomfort on opening the closed eye after it has been sprayed. If there is no mild burning or stinging with the use of the spray, it may be concluded that none of the drug has reached the tear film from the lid margin. This may occur in a tightly closed eye where there is redundancy of the skin and shielding of the lid margins from the spray.

There is less ambivalence on the part of the patient when the spray is directed to the closed eye. This is more pronounced with self-administration. In the case of self-administration, there is a marked startle reaction during the initial applications of spray which is usually absent during subsequent applications.

The clinical use of mydriatic sprays has been well tolerated by patients, particularly pediatric patients. On the other hand, patients with make-up would rather not use the spray. The spray has not altered patient flow in the ophthalmology clinic. There has been satisfactory dilatation for clinical examination and there has also been satisfactory cycloplegia for refraction. Patients with highly pigmented irises do not dilate more rapidly with the spray than with drops and they remain as the more difficult mydriatic problem, as compared to patients with lightly pigmented irises.

DISCUSSION

Of the patients being treated at the University of Arkansas Medical Center, approximately 50 per week are dilated using mydriatic sprays. It

has proved to be a rapid, effective and less irritating route for drug delivery.

Our initial experience was with 150 patients who were utilized in a prospective study of the efficacy of mydriatic sprays as opposed to drops. This study demonstrated that the spray to closed eyes was as effective as the drops of the same solutions to open eyes. There was less irritation. Most important, patients readily accepted the spray. It was shown that patients could close their eyelids during the application of the spray, yet during the first parting of the eyelids a sufficient amount of drug would reach the tear film for mydriasis.¹

The subjective responses of our patients has uniformly been good. The spray delivers approximately 0.075 ml of solution, as compared to 0.10 ml if several drops are given. Consequently, the spray, as compared to drops, does not deliver the overdosage of medications, solutions and preservatives to the conjunctiva; thereby causing less discomfort.

Another aspect of patient acceptance has been the ease of administration, whether by the examiner or by the patient himself. It is easier for the patient to close his eye and allow it to be sprayed than it is to allow drops to the open eye. Also, the patient does not need to assume an awkward position to accommodate the drops.

Since our initial experience with the sprayer, mydriatic sprays have gained greater popularity in our department and in the private practice of some local ophthalmologists. In private practice, the rapidity with which the spray may be administered is appreciated. Uniformly, it has been noted that pediatric patients are particularly receptive to the spray as compared to drops. On the other hand, patients with mascara do not appreciate the spray; however, it should also be recognized that drops will equally distort mascara.

SUMMARY

The topical administration of mydriatics to the eye is time consuming for the physician and unpleasant for the patient. The use of mydriatic sprays was investigated to overcome these problems. It was shown that aqueous solutions of mydriatics, when applied to the closed eye, yielded as much mydriasis upon blinking as drops applied in the usual fashion. Furthermore, the ophthalmic spray is less irritating and easier to administer than drops.

Hypertension Screening in Arkansas

Linda T. Bilheimer, Ph.D.*

INTRODUCTION

The widespread incidence of hypertensive disease, and the problems of its detection and treatment are well known and have been extensively documented. Previous studies have shown that hypertension is more prevalent among blacks and among older persons. Also, males under age 50 have a greater incidence of hypertension than females, but the situation is reversed in the over 50's. The cost-effectiveness of hypertension screening is questionable, since it is difficult to ensure that persons referred for treatment actually obtain it on a continuing basis. However, if screening is undertaken, there are certain target groups that it is desirable to reach.

Recently the Arkansas Heart Association undertook an extensive hypertension screening project in Arkansas. Since other such programs are likely to be developed in the future, it is appropriate to look at the group screened by the Heart Association, and assess how successful the project was in reaching the high risk population. The results of this analysis are shown here, together with referral rates for different demographic groups. The major finding is that the project was relatively unsuccessful in reaching the non-white population. The results also show that referral rates were higher for males than for females in all age groups. As might be expected, the demographic group with the greatest referral rate was the non-white population aged 40 years and over.

The Arkansas Hypertension Screening Project METHODS

In 1974 the Arkansas Heart Association, using funds from the Arkansas Regional Medical Program and a cadre of volunteers, initiated a hypertension screening project in Arkansas which eventually reached 38 counties in the State. Permanent screening sites were developed, but the majority of persons were screened at casual screenings in shopping centers, etc. A supporting media campaign, using television, radio, and the press, was also put into effect. Persons found to have elevated blood pressures were referred to

physicians for treatment. A computerized follow-up system was employed to check on referral compliance, and those not in compliance were urged to seek treatment.

In undertaking this project the Heart Association was dependent upon the cooperation of local physicians and volunteers, and this affected the county selection. Consequently, the 38 counties in which screening took place had a lower percentage of non-whites than the State as a whole. Also, even though the volunteers could screen people effectively, frequently they did not complete the data collection forms correctly. Thus, some of the data generated from this project were not usable.

In the fall of 1975, after hypertension screening had been taking place for a year in at least some of the 38 counties, a 10% random sample was taken from the records of each county, with the primary purpose of determining the demographic characteristics of the persons screened. In this way the effectiveness of the methods used in reaching the population could be assessed. It was also proposed to compare referral rates among different groups of the population. Unfortunately the data from two counties were mislaid. However, since they accounted for a very small percentage of the total sample, the impact on the results was negligible. Also, as mentioned above, not all the data sheets were usable, and this reduced the effective sample size. In order to utilize as much of the data as possible however, a key assumption was made. If an individual's blood pressure was on the form, but there was no indication of whether he or she had been referred to a physician, it was assumed that a referral had been made if the recorded blood pressure was above the critical level used by the Heart Association to determine referrals. Conversely, it was assumed that a referral was not made if the blood pressure was below the critical level. The critical blood pressures were 140/90 for persons under 40 years of age and 160/95 for persons of 40 years or more. By making this assumption, data were available on approximately 4300 persons.

Persons Screened

The 38 counties in which hypertension screen-

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ing took place were scattered throughout the State, with a relatively high concentration in the Northwest. In 1970 these counties had a population of 1.2 million, of which 14.6% was non-white, and 38.3% was aged 40 or above. In comparison, 18.6% of the State's population was non-white and 38.8% was aged 40 or above. It is apparent that the age distributions of the State and the 38 counties are very similar, but there is a significant difference in racial composition. The persons screened for hypertension, however, reflect different age and racial patterns than both the State and the 38 counties.

Tables I and II show the age, race, and sex distributions of the sample population. Two points are outstanding from these tables. First, 65% of the screenees were aged 40 and over. Secondly, 91% of them were white. Additionally, it should be noted that 55% were female.

TABLE I*
Age and Sex Distribution of Persons
Screened for Hypertension (%)

Sex	Age		Total
	Under 40	40 and Over	
Male	16.2	28.8	44.9
Female	18.5	36.6	55.1
Total	34.7	65.3	100.0

TABLE II*
Age and Race Distribution of Persons
Screened for Hypertension (%)

Race	Age		Total
	Under 40	40 and Over	
White	30.5	60.5	91.0
Non-white	4.1	4.9	9.0
Total	34.7	65.3	100.0

*Totals and sums of percentages may differ due to round-off error.

It is likely that the large percentage of persons aged 40 and over reflects their greater concern with hypertension. Also some screening teams made special attempts to reach elderly groups through screening in retirement communities, etc. The higher percentage of women than men may reflect greater concern or better access to the screening sites. It might be expected, for example, that casual screenings in shopping centers would reach more women than men. The low percentage of non-white persons screened is disappointing and raises important questions for

future screening programs. At issue is whether the low participation rate represents an education problem, an access problem, or a combination of the two. It is very interesting to observe that the permanent screening sites which, in general, screened a very small number of persons reached a much higher percentage of non-white persons than did the casual screenings. A Heart Association report, submitted to the Regional Medical Program at the end of the project year, showed that less than 10% of those screened had been screened at a permanent site. However, of those screened at permanent sites 23% were non-white.

Persons Referred

As might have been expected, referral rates differed markedly according to age and race. It can be seen in Table III that referral rates ranged from 6.1% for whites under 40 years of age, to 26.1% for non-whites of 40 and over. The overall referral rate was 10.3%. It is also interesting to observe in Table IV that referral rates were higher for males regardless of age group. (Analysis of the data indicated that this was the case for all racial groups; however, because of the small number of non-white persons in the sample disaggregations by age, race, and sex have been avoided.)

TABLE III
Hypertension Referral Rates by
Age and Race (%)

Race	Age		All Ages
	Less than 40	40 and Above	
White	6.1	11.3	9.6
Non-white	9.0	26.1	18.3
All races	6.4	12.4	10.3

TABLE IV
Hypertension Referral Rates by
Age and Sex (%)

Sex	Age		All Ages
	Less than 40	40 and Above	
Male	8.5	14.2	12.1
Female	4.4	11.0	8.9
Both sexes	6.4	12.4	10.3

Inferences from these referral rates should be made with caution, since data from a project of this nature have a strong "self-referral" bias.

Persons who know, or suspect, they have hypertension are more likely to be screened than others. This exerts an upward influence on referral rates; a higher percentage of the screenees are found to have hypertension than would be the case if the sample was random. It is depressing to note that, in spite of this bias, the majority of persons who were referred did not seek treatment for their hypertension. For example, a report submitted by the Heart Association to the Regional Medical Program, for the three months March-May, 1975, indicated that of 3557 persons referred for treatment only 22% were in compliance.

CONCLUSIONS

It is apparent that much can be learned from the Heart Association's experience about the impact of screening programs in Arkansas. When dealing specifically with hypertension screening, two key issues emerge. First, better methods of reaching the non-white population have to be determined, since it is clear that casual screenings combined with traditional media methods

are not very effective. Secondly, there is the pervasive problem of how to get people who know they have hypertension into a treatment regimen. Hypertension screening would have a much greater impact if these problems could be solved.

REFERENCES

1. Arkansas Heart Association, *Quarterly Reports on Project #68: Hypertension Control for Arkansas*, Arkansas Regional Medical Program, 1975.
2. Arkansas Heart Association, *Report on Project #68: Hypertension Control for Arkansas*, Arkansas Regional Medical Program, 1975.
3. Freis, E. D., "Age, Race, Sex and Other Indices of Risk in Hypertension," *Am. Jour. Med.* 55:275-280, Sept. 1973.
4. Hollifield, J. W., et al., "Hypertension Screening," *Jour. Tenn. Med. Assoc.* 67:404-405, May 1974.
5. Khoury, S. A., "Screening for Hypertension in Washington, D. C. 1971," *Health Services Reports* 88:824-826, Nov. 1973.
6. Lew, E. A., "High Blood Pressure, Other Risk Factors and Longevity: The Insurance Viewpoint," *Am. Jour. Med.* 55:281-294, Sept. 1973.
7. U. S. Department of Commerce, Bureau of the Census, *1970 Census of the Population*, Volume 1: Characteristics of the Population, Part 5: Arkansas.





Office Orthopaedics

Arthrocentesis of The Knee Joint

R. Barry Sorrells, M.D.*

Arthrocentesis ("puncture and aspiration of a joint" — Dorland) is a procedure frequently useful in the practice of Office Orthopedics. A paper devoted to this subject may be of no use to those familiar with the technique; but hopefully will be beneficial to the physician who only occasionally has reason to carry out arthrocentesis or perhaps to the neophyte filled with trepidation at the thought of entering a major joint of the body. While this brief paper will deal only with the knee joint, the principles involved are applicable to arthrocentesis of all joints in the body, only the specific technique and anatomic landmarks will vary.

The knee, with the largest synovial space in the body, is the most frequently aspirated joint. Involvement of this joint by trauma or disease will frequently produce visible and palpable effusion rendering the joint easy to enter for purposes of obtaining fluid and injection of medication.

Prior to consideration of arthrocentesis, it is imperative that one understands the absolute necessity of a sterile procedure and the exercise of all attempts to eliminate the possibility of introducing exogenous infection. The disastrous consequences of intra-articular infection with resultant pyarthrosis, stiffening, osteomyelitis, and joint destruction is well known, at least theoretically if not by actual experience, to most physicians and surgeons.

Valuable information can be obtained through arthrocentesis of the knee joint. The analysis of joint fluid is an essential part of the diagnostic

evaluation of any patient presenting with a joint effusion. The composition of the joint fluid may reflect the pathologic condition existing within the joint. The pathology may be due to trauma such as a torn meniscus or fracture, local joint disease as seen in infections, or systemic disease which manifests primarily as an arthropathy as in rheumatoid arthritis. By examining the joint fluid, considerable knowledge may be gained concerning the disease state and its orthopedic site of activity. This information greatly aids the physician in the diagnosis and treatment of the underlying synovitis which has produced the effusion or hemarthrosis. Analysis of the fluid (synovio-analysis) has been called a "liquid biopsy." The reader is referred to a paper on this subject printed in the *Journal of the Arkansas Medical Society*, June 1974. Figure I is a guide to the interpretation of the fluid once obtained.

TECHNIQUE

The author prefers that the patient be supine on the examining table, the knee for arthrocentesis next to the examiner. The site selected may vary, but if there is no particular reason to select another site, the author prefers the anterior proximal medial knee at the superior medial border of the patella (Figure 2). The surrounding area is shaved and thoroughly prepared with antiseptic cleansing and germicidal painting. A two-minute scrub with providone-iodine (Betadine) surgical scrub followed by careful painting with povidone-iodine (Betadine) solution is preferred by the author. The patient is cautioned not to touch the prepared area and sterile drapes may be applied if desired. Thereafter, a sterile glove, two syringes, and two needles are obtained.

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A small amount of local anesthesia, such as lidocaine (Xylocaine), is drawn into a small syringe and a small needle such as an 18 gauge is also set aside. The needles are kept sterile but the

outside of the syringe can be contaminated since only one hand need remain sterile for the procedure. A sterile glove is then applied to one hand (usually the non-dominate) and anesthesia

		NONINFAMMATORY EFFUSIONS				NONINFECTIOUS INFLAMMATORY EFFUSIONS		INFECTIOUS INFLAMMATORY EFFUSIONS		
		CLASS I		CLASS II		CLASS III		CLASS IV		
		NORMAL	TRAUMATIC	DEGENERATIVE JOINT DISEASE	SYSTEMIC LUPUS ERYTHEMATOSUS	GOUT	RHEUMATOID ARTHRITIS	REITER'S SYNDROME	ACUTE BACTERIAL INFECTION	TUBERCULOUS INFECTION
A. PLAIN SPECIMEN										
1 APPEARANCE	Clear yellow	Clear (occ. bloody)	Clear (occ. slightly turbid)	Clear to slightly turbid	Turbid	Turbid (variable)	Turbid	Very turbid	Turbid	
2 VISCOSITY	Normal	Decreased	Decreased	Decreased	Decreased	Decreased to poor	Decreased	Decreased to poor	Decreased to poor	
3 MUCIN CLOT (CLASS 5)	1	1-2	2-3	1-2	1-3	2-3	1-3	3	2-3	
4 TOTAL WBC	< 200	1,500 (100-7,500)	600 (100-3,000)	2,860 (100-18,200)	13,500 (750-44,700)	15,500 (300-75,000)	18,550 (1,000-52,800)	73,000 (7,800-266,000)	20,000 (2,500-100,000)	
B. ANTICOAGULATED SPECIMEN										
5 CELLULAR MORPHOLOGY % polys	< 7	17 (0-77)	13 (0-50)	DNA Particles 5 (0-32)	67 (12-100)	Ragocytes DNA Particles 66 (6-98)	Many macrophages containing polys 60 (0-96)	90 (46-98)	60 (18-96)	
6 CRYSTALS free intracellular					Urate + + (in pseudogout crystals are Ca pyrophosphate)					
7 GAMMA GLOBULIN IMMUNO-GLOBULIN	14%	16%	16%	15%	9%	25%				
8 COMPLEMENT total & β 1 C	-	Normal	Normal	Elevated	Normal	Elevated	Normal	Normal	Normal	
9 LATEX FIXATION & SENSITIZED SHEEP CELL	Negative	Negative	Negative	Occasionally positive	Negative	Positive	Occasionally positive	Negative	Negative	
D.CULTURE/SMEAR SPECIMEN										
10 BACTERIA	NO	NO	NO	NO	NO	NO	NO	YES	YES	

Figure 1

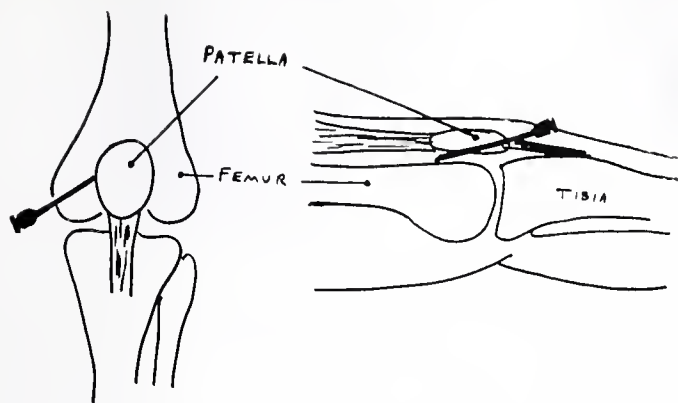


Figure 2

is accomplished by skin wheal at the superior medial border of the patella. The sterile gloved hand is used to ascertain anatomic landmarks. Care is used that the anesthesia is not injected into the intra-articular space but simply to anesthetize the skin and underlying subcutaneous tissue. This is an attempt to keep the anesthesia from becoming mixed with the synovial fluid and perhaps complicating microscopic and chemical analysis. Once adequate time has elapsed to obtain anesthesia, the larger needle and syringe are introduced into the intra-articular space. The direction of the needle should be superiorly, a bit posteriorly, and laterally. The point of the needle should be aimed toward the under surface and superior pole of the patella. Care should be exercised that the needle point not contact the articular surface of the patella or of the femoral condyle. The large suprapatellar pouch is easily entered and is a substantial reservoir for synovial fluid. As the needle is gently introduced, negative pressure is applied to the syringe, and fluid is obtained as the needle is advanced. Once adequate fluid is established into the syringe, no further advancement is necessary. Additional fluid can be obtained by gentle compression of the suprapatellar pouch, "milking" the fluid toward the needle tip. Adequate arthrocentesis can thus be performed removing the majority of the fluid from within the joint. It may be necessary to move the tip of the needle since fluid collections, especially blood, sometimes become loculated within the knee joint. While the needle is in place, the physician may elect to inject a corticosteroid preparation or other medication, depending on the anticipated pathology and disease process existing. This can easily be carried

out through the same needle, using a separate syringe. The needle is then withdrawn, gentle pressure applied to the puncture site, and bleeding usually stops immediately. A band-aid dressing will usually suffice.

An alternate means of aspiration is illustrated by Figure 3. The patient is seated with the knee flexed across the table edge and the area at the anterior knee, from just below the tibial tubercle to above the patella extending medially and laterally to the collateral ligaments is prepared as described. Anesthesia is then accomplished by skin wheal at the lower edge of the patella over the central portion of the infrapatellar ligament. The aspiration needle is directed straight posteriorly into the intercondylar notch but stopping short of the anterior cruciate ligament. An advantage of this technique is that the flexed knee produces compression of the supra-patellar pouch by the stretched quadriceps mechanism and most of the joint fluid will then be found in the intercondylar notch area. A disadvantage is that the patient must be in a sitting position and syncope may occur.

While it is true that many intra-articular effusions and hemarthroses will spontaneously absorb and resolve, nonetheless, it is frequently advantageous to have the fluid for study. Furthermore, injection is frequently indicated. The physician who adheres to the principles outlined above should be able to carry out an atraumatic procedure, obtain adequate material for analysis, and in some cases, speed recovery by removal of the excess fluid. With the exercise of care and application of principles described, introduction of exogenous infection should not occur.

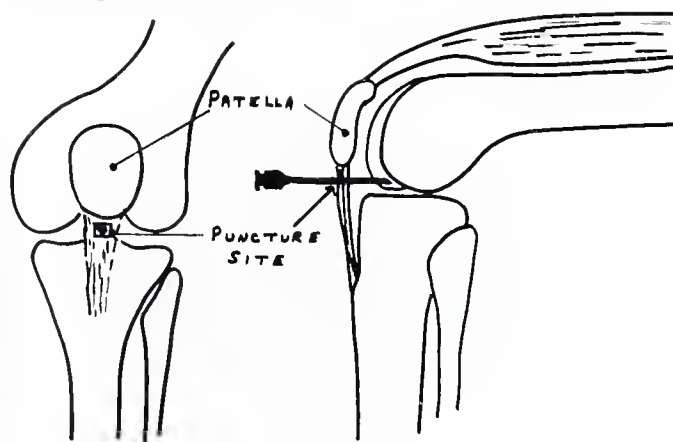


Figure 3

ELECTROCARDIOGRAM



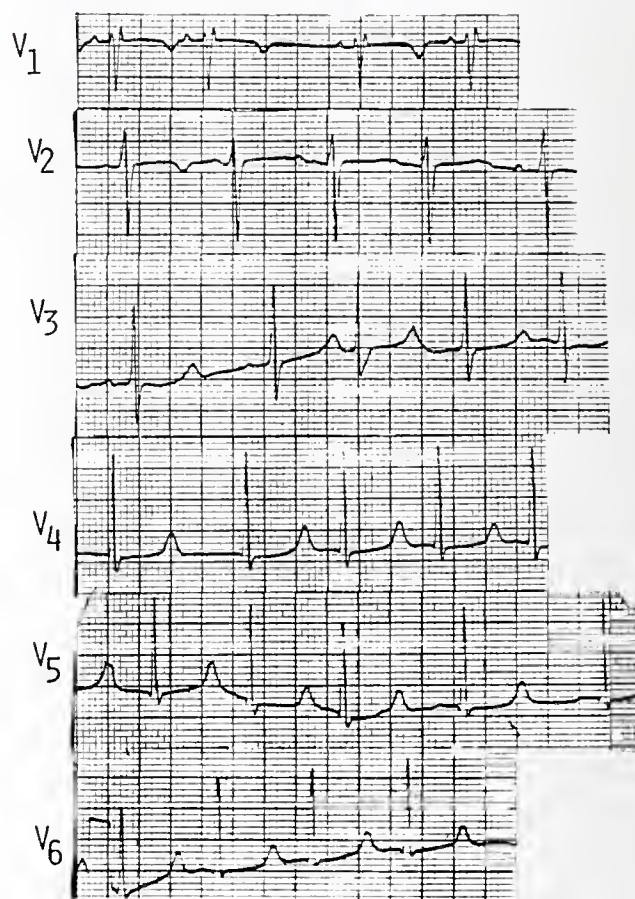
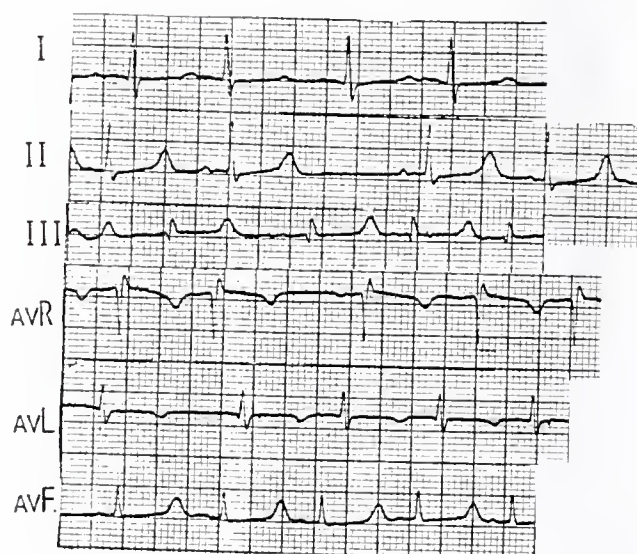
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The Department of Cardiology, University of Arkansas College of Medicine

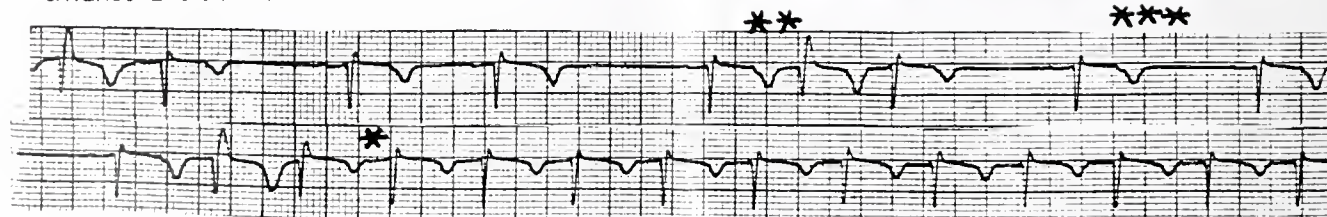
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61 YR OLD BLACK FEMALE, CHRONIC RENAL
DISEASE, WITH SEVERE METABOLIC IMBALANCE

INTENSIVE CARE RHYTHM STRIP



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Rabies

Harvie R. Ellis, D.V.M.*, and Paul C. White, Jr., M.D.**

A review of the 1976 statistics indicates that Arkansas is one of the states with a noticeable increase in animal rabies. In 1975 there were 89 cases reported in 30 counties but in 1976, a total of 155 cases were reported in 35 counties by species as follows: skunk 129, bats 14, cattle 7, cats 3, opossum 1, raccoon 1. In addition, there were 2,132 human exposures to animal bites reported for the year 1976. Out of this number of bite exposures it was necessary for the Public Health Laboratory to examine 1,930 animal heads for rabies.

In 1976, 92 individuals received the complete post-exposure treatment for rabies which consisted of 23 doses of duck embryo rabies vaccine and the human rabies immune globulin according to weight. The wholesale cost for sufficient rabies vaccine and hyperimmune serum for anti-rabies treatment may range from \$127.00 for a small child to \$267.00 and more for adults. This cost figure does not include physician fees, time lost, inconvenience, worry and anxiety. The total cost from a simple animal bite exposure may reach a figure in the neighborhood of \$500.00.

Although Arkansas has not had a human case of rabies since 1957, the opportunity for such a tragedy does exist. Furthermore the problem of just how to treat persons that are bitten, scratched, or otherwise exposed to rabid or suspected rabid animals is certainly a perplexing one for physicians. Adverse reactions further complicate the methods of treatment. Decisions on management of the patient and disposition of the offending animal must be made immediately. The longer the treatment is delayed the

greater the risk becomes to the exposed individual.

The efficacy of rabies vaccine has been questioned because rabies has developed occasionally in humans who have received anti-rabies post-exposure prophylaxis. Field experience from many areas of the world indicates that post-exposure prophylaxis is usually effective when appropriately used.

Whenever anti-rabies treatment is indicated, it should include passive immunization with human rabies immune globulin (HRIG) and a full series of duck embryo rabies vaccine (DEV) injections, or if the person has been successfully immunized previously, a series of booster (DEV) injections. A new rabies vaccine is under study by the Center For Disease Control, Atlanta, Georgia (human diploid cell culture vaccine-WI-38) reported to be a more potent product but not yet available commercially. HRIG and DEV are available at cost through the Arkansas Department of Health. HRIG can also be obtained from Cutter Laboratories in Dallas, Texas, 24 hours per day at (214) 631-6240, although there is an extra charge for emergency shipments. A few private institutions also have a supply of HRIG; and DEV is kept in each county health unit.

Unfortunately, anti-rabies treatment is all too often given inappropriately and unnecessarily. Rabies transmission occurs almost exclusively by a penetrating bite; only a few instances due to saliva contaminating a scratch or mucous membrane, or other non-bite modes are recorded. Mere contact with an animal body, or saliva contaminated articles will not transmit rabies. Lack of evidence for rabies in various species e.g., rodents and rabbits, or in a geographic area, or the

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benign nature of the bite situation e.g., clearly provoked, are further evidence in favor of withholding anti-rabies treatment. Although the decisions may not be easy, the physician should try to make a balanced judgment and not treat simply because of medical-legal concerns.

A GUIDE TO RABIES PROPHYLAXIS
RATIONALE OF TREATMENT

Every exposure to possible rabies infection must be individually evaluated. The following factors should be considered before specific anti-rabies treatment is initiated.

Species of Biting Animal

Carnivorous animals (especially skunks, foxes, coyotes, raccoons, dogs and cats) and bats are more likely to be infective than other animals. In Arkansas cattle are responsible for a number of human exposures because of efforts to engage in home treatment of sick livestock. Bites of rabbits, squirrels, chipmunks, rats and mice seldom, if ever, call for rabies prophylaxis.

Circumstances of Biting Incident

An unprovoked attack is more likely to mean that the animal is rabid. (Bites during attempts to feed or handle an apparently healthy animal should generally be regarded as provoked.)

Type of Exposure

Rabies is transmitted by inoculation of infectious saliva through the skin. Thus, the likelihood that rabies infection will result from exposure to a rabid animal varies with the nature and extent of the exposure. Two categories of exposure should be considered.

Bite wounds: any penetration of the skin by teeth.

Non-bite wounds: scratches, abrasions, or open wounds.

Vaccination Status of Biting Animal

An animal properly immunized against rabies by a licensed veterinarian with a potent rabies vaccine has only minimal chance of developing rabies and transmitting the virus.

Presence of Rabies in Region

If adequate laboratory and field records indicate that there is no rabies infection in a domestic species within a given region, health officials are justified in considering this in recommendations on anti-rabies treatment following a bite by that particular species.

MANAGEMENT OF BITING ANIMALS

A healthy domestic dog or cat that bites a person should be captured, confined, and observed by a veterinarian for 10 days. Any illness in the animal should be reported immediately to the local and state health authorities. (See Arkansas Rabies Control Act, Act 11, as amended by Act 725, 1975.) If the dog or cat develops signs suggestive of rabies, the animal should be sacrificed and the head removed and shipped in a special rabies container provided by the Arkansas Department of Health Laboratory, with the history form (VPH-2) in the container completed.

Early signs of rabies in wild or stray animals cannot be interpreted reliably; therefore, any such animal that bites or scratches a person should be humanely destroyed without head damage and the brain examined in the Arkansas Department of Health Laboratory for evidence of rabies. If the examination of the brain by fluorescent antibody technique is negative for rabies, the bitten person need not be treated.

POST-EXPOSURE ANTI-RABIES GUIDE

	Species of Animal	Condition of Animal At Time of Attack	Treatment of Exposed Human
Wild	Skunk		
	Fox		
	Coyote	Regard as Rabid	HRIG + DEV ¹
	Raccoon		
	Bat		
Domestic	Dog and/or Cat	Healthy Unknown (escaped) Rabid or Suspected Rabid	None ² HRIG + DEV HRIG + DEV
	Other	Consider individually — See “Rationale of Treatment”	

- 1. Discontinue vaccine if fluorescent antibody (FA) tests of animal killed at time of attack are negative.
- 2. Begin HRIG + DEV at first sign of rabies in biting dog or cat during holding period (10 days).
- 3. Please remember that 14 doses of DEV is no longer considered adequate therapy for post-exposure treatment in bite wounds.
- 4. Fourteen (14) doses DEV may be used in non-bite exposures in special situations.

SCHEDULE FOR RABIES PROPHYLAXIS
WITH SERUM PLUS VACCINE

For Bites of Rabid or Possibly Rabid Animals

Immediately — Vigorous debridment and washing of wound with a soap or quaternary ammonium solution (not together, as soap neutralizes quaternary ammonium compounds).

Day 1 — DEV — one dose (one vial) subcuta-

nously*, and Human Rabies Immune Globulin (Cutter) — give 9 I.U./lb. (20 I.U./kg.). This figures out to 2cc (HRIG) for each 33 lbs. of body weight. Any overage of (HRIG) should be discarded. Up to half the dose may be infiltrated locally in large wounds. The rest should be given IM. No sensitivity testing is routinely required, but patients should be asked about sensitivity to human plasma products.

Days 2-21 — DEV, one daily. With centrally located bites or long delays before treatment, 14 doses can be given in the first seven days followed by seven more daily doses. Antihistamines may help to reduce local reactions.

Day 31 — (or ten days after last DEV) DEV booster.

Day 41 — (or 20 days after last DEV) DEV booster. Draw a blood sample (plain tube) and send the serum to the Division of Public Health Laboratories, Arkansas Department of Health, 4815 West Markham, Little Rock, Arkansas 72201, for anti-rabies titer. The appropriate form should be enclosed and marked "Rush, Telephone Results." The test will be done at the Center For Disease Control, Atlanta, Georgia. If no titer is found, the patient should have five more doses of DEV followed by another titer determination in 10 days. A titer of 1:16 is considered a positive response to the rabies vaccine.

PRE-EXPOSURE PROPHYLAXIS

The relative low frequency of severe reactions to DEV has made it practical to offer pre-exposure immunization to persons in high-risk groups; veterinarians, animal handlers, certain laboratory workers, and persons, especially children, living in places where rabies is a constant threat. Others whose vocational pursuits bring

*Precautions: Vaccine should be given subcutaneously, first dose may be given in the abdomen, 2nd dose in lower back or lateral aspect of thighs; alternate sites for each injection will add to the patient's comfort. Local reactions are common and do not contraindicate continuing treatment. Antihistamines may help to reduce the reactions.

Epinephrine is indicated in reactions of the anaphylactoid type. If serious allergic manifestations preclude continuation of prophylaxis with DEV, a new experimental vaccine made in human cells may be available from CDC on special request through the Arkansas Department of Health. If meningeal or neuromuscular reactions develop, vaccine treatment should be discontinued. Corticosteroids given during vaccine administration may interfere with development of active immunity and should be avoided if possible.

them into contact with potentially rabid animals should be considered for pre-exposure immunization.

ADMINISTRATION

1.0 ml. (one single-dose vial) subcutaneously in the deltoid area — three injections one week apart with a fourth one month later, using 1.0 ml. (one single-dose vial) subcutaneously in the deltoid area.

One month or more after the last injection a blood sample should be drawn in a plain tube and either the whole blood or (preferably) the serum sent to the State Division of Public Health Laboratories with one of the attached laboratory slips. If the anti-rabies titer is less than that considered protective, a further course of two injections one month apart should be given and the serum again tested one month after the last injection. A rabies titer of 1:16 is considered POSITIVE response.

Rabies prophylaxis is expensive and painful, although the advent of DEV and HRIG have removed most of the danger. At present, the only effective protection we have is the prevention of animal bites, vaccination of pet animals, evaluation and proper management of biting animals and meticulous prophylactic treatment when human exposures occur.

If you have any questions or desire further consultation on this subject, please feel free to contact the following individuals anytime: Harvie R. Ellis, D.V.M., office phone: 661-2264, home phone: 225-1832; Paul C. White, Jr., M.D., office phone: 661-2316; or Mark E. White, M.D., office phone: 661-2316, home phone: 227-4210.

REFERENCES

1. Recommendations Of The Public Health Service Advisory Committee On Immunization Practices, June, 1972.
2. World Health Organization Technical Report Series No. 523, Expert Committee on Rabies Sixth Report — 1973.
3. Center For Disease Control, MMWR, December 31, 1976, Vol. 25, No. 51. Recommendations of the Public Health Service Advisory Committee on Immunization Practices.





EDITORIAL

Post-Irradiation Abortion: A Slaughter of Innocents?

Glenn V. Dalrymple, M.D., and Max L. Baker, Ph.D.*

Since the atomic bombings of Hiroshima and Nagasaki, the biologic effects of large doses of ionizing radiation have been well described. Although considerable data now exists, the medical profession and the lay public have not been overly concerned about the effects of diagnostic x-rays or radioactive isotopes until the last decade, when radiation was rediscovered to cause damage to the developing fetus. In addition, large epidemiologic studies showed radiation to be associated with an increased incidence of childhood cancer. At about the same time, cytogenetics emerged as a major scientific discipline. These methods demonstrated chromosome damage after relatively low radiation doses. Also, a number of disorders of the birth defect type were associated with cytogenetic changes similar to those induced by radiation.

As the laboratory results became public, widespread concern followed. This can be exemplified by the attitudes of many persons toward nuclear power reactors. A considerable part of the anxiety relates to the possibility of contaminating the environment with radiation. Sensationalism in the press and on the screen suggest that radiation can create large numbers of horribly deformed individuals. As a result, a large segment of the lay public now fears radiation.

Although there is fear of radiation in any form, perhaps the greatest is held by women who are carrying unborn children. While this is justified in part, because the embryonic-fetal period is a period of great radiosensitivity, the anxiety, unfortunately, has been intensified by the attitudes

of some physicians. There have been a number of instances in which the pregnant patient received a very small amount of radiation (as a result of a diagnostic x-ray examination), only to be advised by her physician that she should have an abortion. This was recommended because the amount of radiation was alleged to be able to deform her child. A foreseeable result of this has been litigation against:

- 1) Physicians who refer patients for x-ray examinations.
- 2) Physicians who perform x-ray examinations.
- 3) Physicians who recommend the abortions.
- 4) Physicians who perform the abortions.

While we in Arkansas feel insulated against litigation of this type, unfortunately, cases are in existence, in Arkansas, and others are very likely to follow. As a countermeasure to the problem, we suggest the following:

a) *Do not irradiate women known to be pregnant without a firm clinical indication.* Such simple steps as asking about pregnancy before the examination will eliminate the accidental irradiation of pregnant women. We personally try to avoid irradiating patients in the second half of the menstrual cycle unless pregnancy can be excluded. It should be noted, however, that this is not the official position of The American College of Radiology or H.E.W. (Joseph Sarcarese, et al. *Clinical Methods of Avoiding Medical X-ray Exposure of the Human Embryo and Fetus: A Technical Overview*. U. S. Department of Health, Education and Welfare, Public Health Service, Food and Drug Administration, Bureau

*From the Departments of Radiology, Baptist Medical Center, 9600 West 12th, Little Rock, Arkansas 72201, and the University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Arkansas 72201.

of Radiological Health, November 1976; Reynold F. Brown, John W. Shaver, David A. Lamel. A Concept and Proposal Concerning the Radiation Exposure of Women. Radiological Health Sciences Education Project. Publication No. 874, 1976.) These bodies are re-considering current recommendations for the elective scheduling of women on the basis of position in the menstrual cycle. Because, statistically, relatively few fetuses are actually at risk at the time the examination is performed, elective scheduling may provide less "protection" than anticipated. All authorities recommend that patients with known pregnancy not be irradiated without firm clinical indications.

b) *What should a physician do if accidental irradiation is discovered?* We recommend the following series of steps. First, contact a radiologic physicist, a radiologist, or other radiation scientist to estimate the *actual dose delivered* to the fetus. In our view, the evaluation should include measurements, with phantoms, as well as calculations from information in the literature. Such factors as the quality of the radiation beam, the amount of shielding, the amount of fluoroscopy, the type of equipment, etc., all play a role. It is our experience, as well as that of others, that the usual diagnostic examination (x-rays and radioactive isotopes) will deliver fewer than five rads to the fetus. As described below, doses of this magnitude do not, in our opinion, represent grounds for abortion.

SPECIFIC RECOMMENDATIONS. The entire situation should be discussed with the woman and the father of the child. The following dose levels are based upon data which are available in the literature, together with our thoughts on the matter (E. Hammer-Jacobsen, *Therapeutic Abortion on Account of X-ray. Danish Medical Bulletin*, 6:113-122, 1959; S. C. Bushong, A. Welch, N. Prasad and S. A. Glaze. Absences of Chromosome Damage in the Newborn Infant Following X-ray Pelvimetry. *American Journal of Obstetrics and Gynecology*, 117:933-938, 1973.) They should not be considered to be absolute, however.

0-5 Rads — There is no indication for abortion on the basis of radiation dose alone. Most incidental exposures fall within this range. Reassurance of the parents would be given in this situation.

5-10 Rads — Abortion could be considered, but the reason for abortion should be emphasized. It is very unlikely that actual somatic damage would follow low doses of this magnitude. That is, the child would appear to be normal at birth. Instead, the problem is one of the injection of recessive mutations into the population. Also, there is the possibility of an increased likelihood of concern in later life. Hopefully, modern radiologic practice will limit the number of fetuses irradiated; the impact upon the population would thereby be negligible.

Above 10 Rads — There would be a somewhat stronger consideration for the *recommendation* of an abortion as the dose increases. Here the attitudes of parents certainly must be taken into account. Doses above 10 rads would, in general, represent a very large number of films and/or isotopic studies.

The background probability of a "blighted pregnancy" should also be considered. In young women there is a 3 to 5% chance of an abnormal child developing in the absence of radiation. With advancing maternal age, the chance of an abnormal child increases. In addition, the impact of other environmental factors such as medicines, food additives, cigarettes, coffee, etc., are not known. A great deal of the fear associated with radiation rests upon the fact that so much is known about the biological effects.

We feel that proper radiologic practice will eliminate or greatly reduce the number of potentially pregnant women irradiated. If accidental irradiation does occur, the fetal dose very likely will be less than five rads. As a result — abortion is *not* indicated. Our experience is that the effort by the physician to determine the existence of pregnancy (menstrual history, pregnancy test, etc.) gives the patient a sense of confidence and improves physician-patient relationship if an accidental irradiation has occurred.

If any of our readers have problems with the accidental irradiation of the unborn child, it would be our pleasure to assist in any way possible.

REFERENCES

1. Sarcaresc, Joseph, et al.: Clinical Methods of Avoiding Medical X-ray Exposure of the Human Embryo and Fetus: A Technical Overview. U.S. Department of Health, Education and Welfare, Public Health Service, Food and Drug Administration, Bureau of Radiological

Health, November 1976.

2. Brown, Reynold F., Shaver, John W., Lamel, David A.: A Concept and Proposal Concerning the Radiation Exposure of Women, *Radiological Health Sciences Education Project*, Publication No. 874, 1976.
3. Hammer-Jacobsen, E.: Therapeutic Abortion on Ac-

count of X-ray, *Danish Medical Bulletin*, 6:113-122, 1959.

4. Bushong, S. C., Welch, A., Prasad, N., and Glaze, S. A.: Absences of Chromosome Damage in the Newborn Infant Following X-ray Pelvimetry. *American Journal Obstetrics and Gynecology*, 117:933-938, 1973.



MEDICINE IN THE



THE MONTH IN WASHINGTON

Four key lawmakers, representing both political parties, have introduced into the new Congress an American Medical Association proposal for national health insurance.

Association President Richard E. Palmer, M.D., urged the 95th Congress and the Carter Administration to consider carefully "this forthright approach to national health insurance. This bill would extend health insurance to every American at a cost the nation could afford. It is a viable solution to the problem of providing quality health and medical care to everyone."

The Comprehensive Health Care Insurance Act of 1977 was introduced into the Senate by Senator Clifford P. Hansen (R.-Wyo.) and in the House of Reps. Tim Lee Carter (R.-Ky.), John M. Murphy (D.-N.Y.), and John J. Duncan (R.-Tenn.).

The medical profession's NHI plan would build on the structure of the present system of employer-employee group health insurance plans, mandating each employer to provide comprehensive and catastrophic benefit coverage with the employer picking up at least 65 percent of the cost. Employees would not be compelled to participate.

The self-employed as well as the non-employed could purchase qualified private health insurance, through pools if needed, at a cost not more than 125 percent of the cost of group plans. They would have all or part of the premium paid for

by the federal government depending upon their income tax liability.

Small businesses that found the mandated plan an added financial burden would receive federal assistance.

Medicare beneficiaries could purchase supplemental insurance to bring Medicare benefits to a par with those offered elsewhere, with the government assisting people with limited resources. Medicaid would, for the most part, be supplanted under the program.

After a certain level of co-insurance was reached, depending upon income, insurance would cover all remaining expenses as a complete protection against catastrophic costs.

The co-insurance factor would deprive no one of needed care, the sponsors said. The absolute maximum that any individual would have to pay would be \$1,500; the absolute maximum for any family would be \$2,000 in any given year.

Senator Hansen, a member of the Senate Finance Committee, said:

"The bill we are introducing today would solve the problem of financing for every American. It would guarantee quality medical care to everybody. It would cover the cost of catastrophic illness. It would be fully comprehensive in terms of benefits. It would build on our present system, rather than dismantling it and replacing it from scratch with a new one requiring the creation of a giant bureaucracy. It would allow everyone to choose his or her own physi-

cian, dentist and health insurance plan. And it would be a plan we can afford.

"This legislation would cover the poor by paying all of their insurance premiums," Hansen said. "Those better able to afford to pay those premiums would be assisted in a fashion commensurate to their need by lesser degrees of government help. The affluent would even be encouraged to buy health insurance by a tax subsidy of ten percent of the premium cost.

"As the principal (Senate) sponsor, I am confident that this measure can meet our needs at a cost, in new dollars, that will not be burdensome," the Senator from Wyoming said.

Rep. Carter, ranking minority member of the House Health Subcommittee, said that "—as a member of the House Subcommittee on Health and Environment for twelve years, I have devoted much of my legislative effort to issues concerning our country's health care system. And as a physician, I have made a personal commitment to do what I can to help improve the health care of our people.

"As a co-sponsor of the Comprehensive Health Care Insurance Act of 1977," Carter continued, "I believe this measure offers a workable approach to extending health insurance to every American. In large measure, this proposal retains the expertise and experience of our existing private health care sector in both its administration and financing.

"It is these proven skills and resources of the private sector which I believe we should build upon in developing a national health insurance program, and which should be supplemented only when necessary by government.

"This proposal would provide coverage to the great bulk of the American population through employer-employee financial arrangements in which not less than 65 percent of the premium would be paid by the employer," Carter said.

"For those who are self-employed or unemployed, health insurance would be provided through an income-tax credit or federal certificate of entitlement system. Thus this plan would correct one of the major weaknesses of our present system by removing the financial barriers that in the past have denied some Americans access to high quality care."

Rep. Murphy, with Carter a member of the House Interstate and Foreign Commerce Committee, said the proposed legislation would pro-

vide "—more comprehensive benefits than any other (proposal) previously considered by Congress; and it would deliver quality health care to everyone—including the poor, and the elderly—without bankrupting the nation.

"For those unemployed, or of low or fixed income, and the elderly, premium costs would be paid by the government on an equitable sliding scale," Mr. Murphy said.

"By building the private sector and helping those who need help the most, this approach avoids many of the problems inherent in other proposals before the Congress.

"Further, it would avoid additional burdens on an already beleaguered social security system, the preservation of which must be one of our highest national priorities," according to Mr. Murphy.

Rep. Duncan, a member of the House Ways and Means Committee, questioning how Congress could write a national health insurance plan while preserving at the same time the fiscal integrity of the Treasury, said in prepared remarks:

"The Comprehensive Health Care Insurance Act of 1977 . . . controls costs by limiting federal help to those in need by determining that level of need from income tax liability. Additional cost controls are found in its co-insurance factor, except for the poor; its provision of preventive care; and its promotion of competition among health insurance carriers."

* * * *

The Carter Administration has announced through its new Secretary of Health, Education and Welfare that a "well-thought through" national health insurance proposal cannot be submitted to the Congress this year.

Joseph Califano, at his first press conference after confirmation as HEW Secretary, predicted that the Administration would first concentrate on health care cost controls and better utilization of existing federal programs.

"Quite frankly," he said, "I'm not sure that we know enough about the larger problems to move faster." In addition, he said, there are other more pressing problems such as reorganization, energy, welfare reform and unemployment that will occupy much of the Administration and Congress' time.

"There's a limit on how much work can be handled intelligently in the time span," Califano said.

The new HEW Secretary also said the crucial appointment of an Assistant HEW Secretary for Health probably would not be made for a week or 10 days. He stressed the importance of such appointments, saying his choices could be the most important decisions he makes, since they will affect the source of HEW operations over the next four years.

Califano added that most of the policy-making officials at HEW under the Ford Administration are being replaced. This is what the American people expect of a new administration, he added.

Asked about reorganization of the HEW Department and the campaign proposal to make education a cabinet department, Califano predicted there would be no major reorganization proposal for his department that would be ready for submission to Congress this year.

He said he intends to "end politicization" of the National Institutes of Health, especially on the advisory committees, but did not go into any detail.

The major announcement at the conference was a comprehensive study of welfare reform bringing in all areas of government and the private sector for consultation. Califano said it is clear there is national support for an income security system, but that the public also is "impatient with the inability of our government to remove from the welfare rolls those persons improperly on them." He foresaw a "great national debate" on the issue.

Asked whether groups such as the American Medical Association and the Pharmaceutical Manufacturers Association groups with interest in the Medicaid side of welfare would be consulted, Califano said they will be consulted as well as all other groups involved in welfare programs.

Califano took a couple of swipes at the former HEW Administration, saying he found a "substantial entourage" of 143 officials at the level of the Secretary's Office. He said he plans to cut this substantially and transfer these functions to the responsible agencies, at a savings of more than \$500,000.

* * * *

Medicare and Medicaid spending next fiscal year is predicted to top \$35 billion, up more than \$5 billion for the estimate of the current fiscal year. The Ford Administration's final, and somewhat academic, budget proposal to Congress

for financing the federal government next fiscal year set overall health, education and welfare spending in fiscal 1978 at \$159 billion, an increase of \$11 billion. More than \$100 billion of this, however, is in Social Security Trust Fund outlays.

There was little new in the budget plans for health compared with last year's budget except for the steady creep upwards (19 percent) of costs for Medicare and Medicaid. Budget requests for most HEW health activities were kept to about this year's level. The Carter Administration is slated to submit its own federal spending plans about mid-February. These are certain to include hefty proposed boosts in some health areas.

HEW spending on health has jumped from \$9.7 billion in 1968 to a predicted \$42.2 billion. It will rise another \$3 billion next year, according to budget charts.

* * * *

Tightening Medicare-Medicaid fraud provisions is one of the first orders of business before Congress. Legislation has been introduced in House and Senate by key health lawmakers who pledged speedy action.

The bill, sponsored by Sen. Herman Talmadge (D.-Ga.) and Reps. Paul Rogers (D.-Fla.) and Dan Rostenkowski (D.-Ill.), makes provider fraud a felony rather than a misdemeanor, arms Professional Standards Review Organizations (PSROs) with power to review "Medicaid Mills," require certain financial disclosures by non-physician providers, and requires PSROs to turn over information to state and federal agencies investigating fraud and abuse as well as health planning agencies.

Rep. Dan Rostenkowski (D.-Ill.), Chairman of the House Ways and Means Subcommittee on Health, said in a House floor speech that "strong efforts must now be made both legislatively and administratively through a renewed commitment to interdepartmental cooperation to bring a sense of morality back into our federal health payment programs."

Rep. Paul Rogers (D.-Fla.), Chairman of the House Commerce Subcommittee on Health, said the honest, hard-working provider suffers from instances of fraud and abuse because his reputation is damaged. "We have an obligation to all concerned to improve the administration and management of our medical care programs."

Joint hearings will be held shortly by the two

subcommittees on the legislation.

The measure was considered by Congress during the last session but time ran out before action could be taken.

More sweeping changes in Medicare and Medicaid, including changes in reimbursement methods, are expected to be considered later.

* * * *

The Supreme Court has refused to review a 1975 Florida law designed to substitute mediation for professional liability litigation. Left standing was a decision last May by the Florida Supreme Court, which upheld the state's Medical Malpractice Reform Act. The law makes it mandatory for a complainant to submit to mediation before filing a lawsuit. The three-member mediation panel is composed of a circuit judge, who is the referee, plus a physician and a lawyer, the panel's conclusion as to liability may be admitted as evidence at a later trial.

* * * *

A congressional budget office study declares financing of catastrophic medical costs "does not appear to be a serious national problem for the 103 million persons estimated to be covered by major medical insurance."

According to the report, "major medical insurance has improved so significantly over the last five years that persons holding such coverage are adequately protected against high expenses, especially when such costs are associated with a hospital stay."

The report states that "serious coverage problems" exist for both routine and catastrophic expenses incurred by low-income families. An estimated 40 million persons with projected incomes of less than \$10,000 are either uninsured and not eligible for Medicaid or hold individual (non-group) insurance policies. "Coverage under such insurance is generally very poor." And an estimated 5.6 million families with projected 1978 incomes of less than \$10,000 will have out-of-pocket expenses for medical care which exceed 15 percent of their income, the report said.

In addition, a major coverage problem continues in providing protection against the cost of long-term care. "Neither public insurance programs, such as Medicare, nor private insurance plans provide meaningful protection against the cost of long-term care," the report noted. "Mental health services are also frequently excluded from coverage." The study said even people

with otherwise good insurance can experience catastrophically high expenses for these services.

* * * *

GRANTS TO THE UNIVERSITY

The Department of Ophthalmology at the University of Arkansas College of Medicine received a \$5,000 grant from Research to Prevent Blindness, Inc. The University is among 50 institutions which have shared three million dollars in annual grants from the research organization. The Ophthalmology Department has received \$25,000 in grants during the last six years.

Dr. F. T. Fraunfelder, department chairman, said the grant would be used to pursue surgery techniques for ocular cancer. The Department of Ophthalmology has treated a large series of eyelid malignancies with cryosurgery.

* * * *

The National Cancer Institute has granted Dr. E. Robert Burns \$62,330 to do research into ways to make cancer cells more susceptible to irradiation or drugs, or both, while protecting normal cells from damage. Dr. Burns is the associate professor of anatomy at the University of Arkansas College of Medicine. He has been a member of the anatomy department since 1968. He was a National Institutes of Health fellow in the pathology department at George Washington University for a year.

Dr. Burns is beginning the fourth year of a five-year Research Career Development Award. Approximately 60 scientists in the United States have received awards.

* * * *

ANSWER—Electrocardiogram of the Month

Sinus rhythm at 84 per minute with frequent premature atrial beats which show delayed AV conduction*, aberrant conduction**, or complete block of AV conduction***. In addition the 2nd rhythm strip shows what appears to be a re-entrant atrial tachycardia, probably set off by the premature atrial beats.

PR interval of sinus beats = 0.16

QRS interval of non-aberrated beats = 0.08

QT interval of non-aberrated beats = 0.46

The QT interval for a woman with a heart rate of 80 to 85 should be 0.35 ± 0.04 second.

The QT interval is abnormally prolonged. Note, however, that there are no U waves, and the QT attenuation results more from prolongation of the ST portion than of the T wave portion. This type of QT change is more characteristic of hypocalcemia (also some drugs such as phenothiazines) than of hypokalemia. This patient's serum Ca^{++} was 4.4. The etiology of her atrial arrhythmia is unexplained.



PERSONAL AND NEWS ITEMS

Dr. Saltzman To Serve As Chairman

Dr. Ben Saltzman, director of Rural Medical Development Programs at the University of Arkansas College of Medicine, has accepted the responsibility of Crusade Chairman of the American Cancer Society's Arkansas Division campaign this year. Dr. Saltzman is a past president of the Arkansas Division of the American Cancer Society.

Dr. Honghiran Inducted

Dr. Theeradej Honghiran, Russellville orthopaedic surgeon, was recently inducted as a Fellow of the American Academy of Orthopaedic Surgeons.

Waldron Honors Its Physicians

Dr. Harold B. Wright, general practitioner from Waldron, was among the honorees of a party given by the residents of that community. The community party was given to show appreciation for the work and dedication of the physicians in that community and to welcome their new physician, Dr. Swicegood, and his wife.

Dr. Davidson Certified

Dr. Dennis O. Davidson, Family Practitioner from Stephens, was certified by the American Board of Family Practice recently.

Dr. MacDade Speaks On Spina Bifida

Dr. Albert D. MacDade, Neurosurgeon with Holt-Krock Clinic in Fort Smith, recently addressed the Spina Bifida Association of America on the effects of the disease, spina bifida.

Dr. Wheat Speaks

The Lowell Evangelical Free Church of Springdale recently heard Dr. Ed Wheat discuss "Marriage Foundations in Genesis." Dr. Wheat is a Springdale general practitioner and the president of the Washington County Medical Society.

Dr. Feder Has New Associate

Dr. David Hamblin will be associated with Dr. Frederick P. Feder, Fort Smith Urologist, in July. Dr. Hamblin comes to Fort Smith from Oklahoma.



THINGS TO COME



NEW YORK UNIVERSITY POST-GRADUATE COURSES

APRIL 20-22, 1977, the New York University Postgraduate Medical School will offer "Interpretation of Clinical Laboratory Data for Primary Care Physicians." This is a practical survey of the laboratory repertoire utilized in the diagnosis and evaluation of patients with diseases commonly encountered in office practice. Both basic concepts and recent advances in clinical enzymology, hyperlipidemia, thyroid diseases, liver disease, anemia and infectious disease will be discussed. Tuition is \$180 payable when sub-

mitting application and there is a 25% reduction in tuition for Alumni and former residents or fellows of New York University School of Medicine. This meets the criteria for 22 hours of credit in Category I for the Physician's Recognition Award of the AMA.

MAY 19-21, 1977, there will be a postgraduate course on "Prevention, Diagnosis and Treatment of Clinical Disorders of Hemorrhage and Thrombosis."

This course is designed to assist physicians in updating their diagnostic and therapeutic skills in acute and chronic venous and arterial thromboembolism as well as other areas of peripheral vascular disease. The material will emphasize the cardiac, cerebral, and peripheral circulations. Non-invasive and invasive diagnostic modalities will be analyzed. The areas of therapy will include anticoagulants, platelet anti-aggregants, thrombolytic therapy and various surgical procedures. Tuition fee is \$150 payable when sub-

mitting application. The course meets the criteria for 15 hours of credit in Category I for the Physicians' Recognition Award of the AMA.

Both courses will be held in the Alumni Hall of the New York University Postgraduate Medical School, 550 First Avenue, New York City, 10016.

For more information write: Registration Office, New York University Postgraduate Medical School, 550 First Avenue, New York, New York 10016, or call 212-679-3200, Ext. 4038.

HEALTH CARE SERVICES CONFERENCE

June 16-18, 1977, the Ninth Annual Emergency Health Services Conference will be held at the Arlington Hotel in Hot Springs, Arkansas. The conference is presented by the Arkansas Trauma Research Society, Arkansas Bureau of Emergency Health Services, the American College of Surgeons, and the Arkansas Committee on Trauma.

Of primary interest will be the program on "Care of the Critically Injured." The first general assembly will be on the 17th and the interest group meetings are scheduled for the afternoon of the 17th and the morning of the 18th. The four sections are: physicians, nurses, administrators and supervisors, and emergency medical technicians. A second general assembly will conclude the conference on Saturday afternoon. The conference is accredited by the American Academy of Family Physicians.

For further information: Bob Ford, Executive Vice President, Arkansas Trauma Research Society, 550 Prospect Building, Little Rock, Arkansas 72207. Telephone 661-1545.

CONTINUING EDUCATION PROGRAMS FOR MAY AND JUNE 1977

MAY

No Date "National Orthopaedic Seminar — Hip."

Dr. Carl Nelson, Program Director.

14 "Spring ENT Seminar for Family Physicians." Dr. James Suen, Program Chairman.

20-21 "Clinical Anesthesia." Dr. Richard Clark, Program Director

JUNE

3-4 "Basic Principles of ASIF Fixation." Dr. Carl Nelson, Program Director.

No Date "Clinical Obstetrics and Fetal Maternal Medicine." Dr. David Barclay, Program Director.

All programs are held at the University of Arkansas College of Medicine in Little Rock unless

otherwise indicated. For additional information write:

Office of Continuing Education for Physicians
University of Arkansas College of Medicine
4301 West Markham, Mail Slot 525

Little Rock, Arkansas 72201

or call toll free: 1-800-482-9612, and ask for the Office of Continuing Education.



NEW MEMBERS

DR. DONALD S. DOUGLAS

Dr. Donald S. Douglas has been accepted as a member of the Baxter County Medical Society. He is a native of northwest Arkansas. Dr. Douglas received his M.D. degree from the University of Arkansas School of Medicine in 1968. His internship and residency training in Pathology were at the Oakland Naval Hospital. Dr. Douglas was Chairman of Laboratory Services at Pensacola Naval Hospital. He was in Pensacola three years before locating in Mountain Home in August 1976. Dr. Douglas is a board certified pathologist with offices in the Baxter General Hospital at Mountain Home. He is a member of the American Society of Clinical Pathologists.

DR. RAY W. LEAVELLE

Dr. Ray Leavelle is a new member of the Howard-Pike County Medical Society. Born in Texarkana, Arkansas, he attended the University of Arkansas School of Medicine and received his M.D. degree in 1970. Dr. Leavelle interned at Baptist Medical Center in Little Rock and then served a residency in Radiology at the University of Arkansas Medical Center from 1971 to 1974. He was in the United States Air Force from 1974 to 1976.

Dr. Leavelle is associated with the Howard County Memorial Hospital in Nashville in the Department of Radiology.

JEFFERSON COUNTY ADDS FOUR NEW MEMBERS

The Jefferson County Medical Society has recently added four physicians to its membership roll. They are:

DR. ROBERT R. GULLETT, JR., has joined the Doctors' Clinic at 1421 Cherry in Pine Bluff. He is a board certified Orthopaedic Surgeon. He is a graduate of Louisiana State University School of Medicine in New Orleans and completed his internship training at the Confederate Memorial Hospital in Shreveport. He was in residency at the Confederate Memorial Medical Center in Shreveport and the Shriners Hospital for Crippled Children. Dr. Gullett served in the United States Army for two years. He was with the Fort Carson Army Hospital in Colorado Springs, Colo.

DR. DANIEL C. MCKINNEY, who is associated with the Children's Clinic, is a native of Arkansas and attended the University of Arkansas College of Medicine where he received his M.D. degree in 1972. Dr. McKinney interned at Emory University Hospital in Atlanta, Georgia. His residency training was at the University of Arkansas Medical Center in Pediatrics from 1974 to 1975. He held a fellowship in Adolescent Medicine at the Children's Hospital in Washington, D. C., in 1976.

Dr. McKinney is board certified in Pediatrics. The Clinic address is 1420 West 43rd, Pine Bluff.

DR. CHARLES E. REAVES is a Dermatologist located at 1708 West 42nd Avenue in Pine Bluff. He is a native of Mississippi and attended the University of Mississippi in Jackson where he received his M.D. degree in 1967. Dr. Reaves served in the United States Air Force from 1967 to 1976. He completed his internship at the United States Air Force Medical Center at Keesler Air Force Base in Mississippi and had residency training in Dermatology from 1971 to 1974 at the Wilford Hall United States Air Force Medical Center in San Antonio, Texas.

During his active duty, Dr. Reaves served in various locations and attained the rank of Lieutenant Colonel. He is Assistant Clinical Professor of Dermatology at the University of Arkansas College of Medicine. Dr. Reaves is board certified and a fellow of the American Academy of Dermatology.

DR. STERLING A. ROAF is in private practice at 1310 Linden, Pine Bluff. He is a graduate

of the Meharry Medical College School of Medicine, Nashville, Tennessee, where he received his M.D. degree in 1972. His internship and residency training were at the Martin Luther King Hospital in Los Angeles, California. Dr. Roaf's specialty is Gynecology, and he is board eligible.

DR. WARREN HARRISON KIMSEY

Dr. Warren Kimsey is a new member of the Lonoke County Medical Society. He is a native of Tennessee and attended the University of Tennessee College of Medicine where he received his M.D. degree in 1943. He completed his internship at the Baptist Memorial Hospital, Memphis. He was in surgery residency at the Veterans Administration Hospital in Memphis, neurosurgery at Baptist and John Gaston Hospital, Memphis, neurosurgery and pathology at the New York Neurological Institute, and neurology training at several hospitals in Washington, D. C.

Dr. Kimsey served in the United States Army during World War II at Cushing General Hospital. During the Korean War he was Assistant Chief Neurosurgeon at the Walter Reed Army Hospital and Chief Neurosurgeon at Valley Forge Army Hospital. Dr. Kimsey was in the private practice of Neurosurgery in Chattanooga, Tennessee, for twenty-two years.

Dr. Kimsey is presently the company physician of the Remington Arms Company in Lonoke and specializes in occupational medicine.

POPE COUNTY

Pope County Medical Society has added four new members to its membership. They are:

DR. NATHAN F. AUSTIN, located at 2504 West Main in Russellville. He attended the University of Arkansas College of Medicine and received his M.D. degree in 1971. He completed his internship and residency training at the University of Arkansas Medical Center.

Dr. Austin is a diplomate of the American Board of Otolaryngology.

DR. R. KINGSLEY BOST is associated with the Millard-Henry Clinic in Russellville, at 3105 West Main Place. Dr. Bost was born in Clarksville, Arkansas, and received his medical degree from the University of Arkansas in 1972. He completed his internship at the University of Kentucky Medical Center and received his residency training at the University of Kentucky Medical Center and the University of Missouri Medical Center.

Dr. Bost has been in practice in Russellville

since 1976. He is board eligible in Pediatrics.

DR. DONALD L. DUNN, Obstetrician-Gynecologist, is also associated with the Millard-Henry Clinic at 3105 West Main Place in Russellville.

Dr. Dunn attended the University of Arkansas College of Medicine and received his M.D. in 1972. He interned and completed residency training at the John Peter Smith Hospital in Fort Worth, Texas. Dr. Dunn entered private practice in July 1976. He is board eligible in Obstetrics and Gynecology.

DR. WILLIAM W. GALLOWAY, Dermatologist, whose office is at 2504 West Main, Suite H, in Russellville, is a native of Arkansas. Dr. Galloway received his M.D. degree from the University of Arkansas in 1972. He interned at St. John's Hospital in Tulsa, Oklahoma, and received his residency training at the University of Arkansas Medical Center.

Dr. Galloway has been in practice in Russellville for approximately eight months.

SALINE COUNTY

Saline County Medical Society has two new members. They are:

DR. JOHN EARNEST FRANDOLIG, who is company physician for the Reynolds Metals Company of Bauxite.

Dr. Frandolig was born in Corpus Christi, Texas, and is a graduate of the University of Texas Medical Branch at Galveston. He completed his internship at the University of Texas Medical Branch Hospitals in pediatrics and received residency training at the same hospitals. Prior to attending medical school, Dr. Frandolig was in the United States Army Chemical Corps, from 1958 to 1960. He has M.S. and Ph.D. degrees from Iowa State University.

Dr. Frandolig was in practice in Naples, Texas, from 1973 to 1976. Since April, 1976, he has been at Bauxite with Reynolds Metals.

DR. ROBERT K. PAUL is a general practitioner with the Benton Services Center in Benton. He was born in Hopkinsville, Kentucky, and attended the University of Arkansas College of Medicine, receiving his degree in 1953. He interned at the City Hospital, Mobile, Alabama, and had Radiology residency training at the Veterans Hospital and Touro Infirmary in New Orleans.

Dr. Paul was in private practice in Mobile, Alabama, from 1954 to 1959; Malvern, Arkansas, from 1962 to 1966; Columbus, Georgia, 1966 to

1974; New Orleans, Louisiana (Charity Hospital) 1974 to 1976. He has been in Benton for approximately nine months.

SEBASTIAN COUNTY

Sebastian County Medical Society has added another six new members to its membership roll. They are:

DR. DONNA JEAN CONARD, pediatrician, a native of Oklahoma, attended the University of Missouri School of Medicine at Columbia, Missouri, and received her M.D. degree in 1973. Her internship was at the University of Wisconsin in Madison and she received her residency training at the Harbor General Hospital, Torrance, California, in Pediatrics. She is board eligible.

DR. REY D. CONARD is associated with the Emergency Department of St. Edward Mercy Hospital in Fort Smith. He is a native of Oklahoma who received his M.D. degree from the University of Missouri School of Medicine at Columbia in 1973.

Dr. Conard interned at the University of Wisconsin Medical Center in Madison and was in residency training at the Harbor General Hospital, UCLA Affiliate in Torrance, California, specializing in surgery. He served in the Marine Corps Reserves from 1962-1968.

Dr. Conard was associated with the Foothill Presbyterian Hospital in Glendora, California, and the San Pedro and Peninsula Community Hospital in San Pedro, California, prior to locating in Fort Smith. He became associated with the St. Edward Mercy Hospital in July 1976. Dr. Conard is a member of the American College of Emergency Physicians.

DR. CLARK ALLEN ERICKSON, Therapeutic Radiologist, is associated with Holt-Krock Clinic in Fort Smith.

Dr. Erickson was born in Brokaw, Wisconsin, and received his M.D. degree from the George Washington University School of Medicine in Washington, D. C., in 1958. He interned at St. Luke's Methodist Hospital, Cedar Rapids, Iowa, and was in residency at Wilford Hall United States Air Force Medical Center in San Antonio, Texas, specializing in Radiology. Dr. Erickson served in the United States Air Force from 1956 to 1976, and was with the Itazuke United States Air Force Hospital in Kyshu, Japan, Truax United States Air Force Hospital, Madison, Wisconsin, and the Wilford Hall United States Air

Force Medical Center in San Antonio, Texas, during that time.

Dr. Erickson has served as Associate Professor of Radiology at the University of Texas Medical School at San Antonio. He is board certified in Radiology.

DR. JAMES F. HOLMAN is specializing in Obstetrics-Gynecology at Cooper Clinic in Fort Smith. The Clinic is located on Waldron Road at Ellsworth.

Dr. Holman was born in Texas and attended the University of Arkansas College of Medicine where he received his M.D. in 1970. Dr. Holman interned at the John Peter Smith Hospital in Fort Worth, Texas. His residency training was at Emory University School of Medicine Affiliate Hospital and Grady Memorial Hospital in Atlanta, Georgia. He served in the United States Air Force from 1971 to 1973 as flight surgeon.

Dr. Holman has been with the Cooper Clinic staff since July, 1976. His board certification is pending.

DR. MICHAEL R. WESTBROOK is on the staff of Sparks Regional Medical Center's Emergency Room in Fort Smith. He is a native Arkansan and received his M.D. degree from the University of Arkansas College of Medicine in 1975.

Dr. Westbrook interned at Sparks Regional Medical Center in Fort Smith.

DR. JOHN A. WORRELL is a Radiologist associated with Drs. Rogers, Parker, Huskison and Culp at 318 North Greenwood, Fort Smith.

Dr. Worrell was born in Tennessee and was graduated from Vanderbilt School of Medicine in 1971. He interned at the Presbyterian Hospital in Nashville and received residency training in radiology at Vanderbilt University Hospital.

Dr. Worrell was in practice at Lovelace Bataan Medical Center in Albuquerque, New Mexico, for one year prior to coming to Fort Smith. He is board certified in Radiology.

DR. BRIAN HAWLEY

Dr. Brian Hawley, Internist and Gastroenterologist, is a new member of the St. Francis County Medical Society. He is associated with Dr. David L. Lockhart at the Lockhart Clinic, Forrest City.

Dr. Hawley was born in Britain and received his pre-medical education at the University of Edinburgh, Scotland. In 1965 he received his

M.D. degree from the University of Edinburgh. His internship was with the Muhlenberg Hospital, Plainfield, New Jersey, and he then received his residency training at the Royal Infirmary, Edinburgh, Scotland.

Dr. Hawley was in private practice in the San Francisco Bay area for six years prior to coming to Arkansas. He was a former Research Fellow and Lecturer at the University of Edinburgh.

UNION COUNTY HAS FOUR NEW MEMBERS

The Union County Medical Society has four new members this year. They are:

DR. WAYNE H. SCHULTZ, who specializes in Radiology and Nuclear Medicine, is associated with the Warner Brown Hospital in El Dorado.

Dr. Schultz served with the United States Navy from 1944 to 1946 and then entered Washington University in St. Louis for his pre-medical education. His M.D. degree was received from Washington University School of Medicine in 1954. He interned at Duke University Hospital. Dr. Schultz has residency training in Diagnostic Radiology at Washington University and in Therapeutic Radiology at the M. D. Anderson Cancer Hospital in Houston. He practiced Radiology in Oklahoma City from 1958 until 1974, was in Hutchison, Kansas, for a year, and in Clifton Forge, Virginia, for a year. While in Oklahoma, he was Assistant Instructor in Radiology at the University of Oklahoma School of Medicine.

Dr. Schultz is board certified in Radiology and Nuclear Medicine.

DR. JAMES D. SYKES is associated with the Children's Clinic in El Dorado at 209 Thompson. He was born in Hot Springs and attended the University of Arkansas, receiving his M.D. degree in 1970. Upon completion of his internship and residency training at the Wilford Hall Medical Center, Lackland Air Force Base in San Antonio, Texas, in 1973, he was with the Air Force Base Hospital in Jacksonville, Arkansas, until October, 1976.

Dr. Sykes is a board certified pediatrician. He served as chairman of the Little Rock Air Force Base Child Advocacy Committee, was the Chief of Hospital Services, and Deputy Hospital Commander of the Little Rock Air Force Base.

DR. SAM D. TAGGART is in Family Practice with Dr. George W. Warren of Smackover. Dr. Taggart is a native Arkansan and received

his medical degree from the University of Arkansas in 1973. He had one year of family practice residency and served two years active duty with the United States Army before joining Dr. Warren.

DR. JOHN R. WILLIAMSON is associated with Dr. Gardner H. Landers at 318 Thompson, El Dorado. He was born in Magnolia, Arkansas, and he attended Ouachita Baptist University for his pre-medical education. He then attended the University of Arkansas College of Medicine, receiving his M.D. degree in 1969. He interned and had residency training at the University of Arkansas Medical Center. Dr. Williamson was in the United States Army from 1970 to 1972.

He began the practice of ophthalmology on July 1, 1976, with Dr. Landers.

WASHINGTON COUNTY

Washington County Medical Society has added three new members to its membership roll. They are:

DR. PETER R. HEINZELMANN is an Orthopedist associated with Drs. Kaylor, Coker, Johnson, and Moore at 2907 East Joyce in Fayetteville. He was born in New York City, graduated from Grinnell College in Grinnell, Iowa, in 1964 with a B.A. degree. He was graduated from the University of Iowa College of Medicine in 1968.

Dr. Heinzelmann interned at the Ramsey Hospital, St. Paul, Minnesota, and remained there for one year of residency training. He continued his residency training at the University of Arkansas, specializing in Orthopedics. He held a fellowship in hand surgery at the University of Iowa for six months. He was named Clinical Assistant with the Department of Orthopedics at the University of Arkansas School of Medicine in 1975.

Dr. Heinzelmann has been in practice in Fayetteville about nine months.

DR. JAMES EDWARD McDONALD, II, is an Ophthalmologist with offices at 461 East Township Road in Fayetteville. He was born in Texas, received his B.S. and M.D. degrees from the University of Arkansas in 1967 and 1969 respectively, and stayed on to complete his internship and residency at the University of Arkansas Medical Center, 1969-1974.

Dr. McDonald was in the United States Air Force from 1974 to July, 1976. He is board eligible in Ophthalmology.

DR. BORKO B. VISKOVICH, Anesthesiologist, is in private practice at 1665 North College Avenue in Fayetteville. He was born in Jelsa, Yugoslavia, and attended the University of Zagreb, in Zagreb, Yugoslavia, where he received his M.D. degree in 1961. He had an internship in Yugoslavia, and at St. Mary's Hospital in Milwaukee, Wisconsin. Dr. Viskovich was in residency training at the County Hospital in Milwaukee from 1973 to 1975, and the University of Arkansas Medical Center in Little Rock from 1975 to 1976.

Dr. Viskovich has been with the Washington County Regional Hospital for approximately six months.

WHITE COUNTY

There are two new members of the White County Medical Society to add to their membership roll. They are:

DR. KENNETH R. MEACHAM has his office at 910 East Race Avenue in Searcy. He is a native Arkansan and received his M.D. degree from the University of Arkansas College of Medicine in 1969. After graduation, he remained at the University of Arkansas Medical Center for his internship and residency training. Dr. Meacham served in the United States Navy from 1974 to 1976. He moved to Searcy for the practice of Urology after his military service.

DR. WILLIAM H. NEVINS is in private practice of Ophthalmology at 910 East Race in Searcy. He was born in Chicago, Illinois, and received his B.A. degree from Hendrix College in 1962, and his M.D. from the University of Arkansas College of Medicine in 1967.

Dr. Nevins completed his internship at the University of Tennessee in 1968 and then was in residency training at Vanderbilt University Hospitals in Nashville from 1968-1971. He was in the United States Army at Fort Knox, Kentucky, from 1971-1973.

Dr. Nevins has been in private practice in Heber Springs and Searcy for three years. He is board certified.

MR. REGINALD ALAN LUCAS

Pulaski County Medical Society has extended membership to Mr. Reginald Alan Lucas who is a sophomore at the University of Arkansas College of Medicine. He received his pre-medical education at Northeast Louisiana University at Monroe, Louisiana. He is a native of Crossett.



O B I T U A R Y

HAL R. DILDY, M.D.

Dr. Hal R. Dildy, Little Rock Internist, died January 30, 1977. Dr. Dildy was born March 21, 1921, in Hope, Arkansas. He was graduated from the University of Arkansas School of Medicine in 1944 and interned at the University Medical Center. Following internship, he had a fellowship with Dr. E. P. Joslin of Boston, Massachusetts. Dr. Dildy served in the United States Air Force from 1953 to 1955. He was in practice in Little Rock from 1947 to 1964, except for those two years in service. From 1964 to 1970, Dr. Dildy was with the Dow Chemical Company in Golden, Colorado, United States Steel Corporation, Pittsburgh, Pennsylvania, and the Remington Arms Company in Lonoke, Arkansas. At the time of his death, he was in private practice at 500 South University.

Dr. Dildy was a member of the St. Mark's Episcopal Church and an officer of the Arkansas Diabetic Society.

Dr. Dildy is survived by his wife, Mrs. Elizabeth T. Dildy, and two daughters, Miss Leslie B. Dildy and Miss Lori M. Dildy.



R E S O L U T I O N S



WHEREAS, the recent death of our fellow member, William O. Young, M.D., is noted with sincere sorrow, and

WHEREAS, for twenty years, Dr. Young had been a loyal member of the Pulaski County Medical Society, and

WHEREAS, his devotion to the profession and to the care of his patients is worthy of the highest praise:

BE IT THEREFORE RESOLVED:

THAT, this resolution be adopted and made a part of the permanent records of this Society, and

THAT, a copy of this resolution be made available to the Journal of the Arkansas Medical Society for publication, and

THAT, a copy of this resolution be sent to Dr. Young's family as an expression of heartfelt sympathy.

By Direction of the Memorials Committee

Signed: T. Duel Brown, M.D., Chairman
Robert Watson, M.D.
Henry Hollenberg, M.D.

Approved: Executive Committee
February 16, 1977

* * * * *

WHEREAS, the members of the Pulaski County Medical Society are deeply grieved by the recent death of our colleague, Hal R. Dildy, M.D., and

WHEREAS, Dr. Dildy was held in the highest respect by his fellow physicians for his interest in the well being of his patients, and

WHEREAS, we desire to express our appreciation for his devotion to the interests and affairs of the Society:

BE IT THEREFORE RESOLVED:

THAT, this resolution be made a part of the permanent archives of this Society, and

THAT, Dr. Dildy's family be sent a copy of this resolution as an expression of our sincere sympathy, and

THAT, a copy of this resolution be sent to the Journal of the Arkansas Medical Society for publication.

By Direction of the Memorials Committee

Signed: T. Duel Brown, M.D., Chairman
Robert Watson, M.D.
Henry Hollenberg, M.D.

Approved: Executive Committee
February 16, 1977

May, 1977

THE JOURNAL OF THE *Arkansas* MEDICAL SOCIETY

Vol. 73 No. 12

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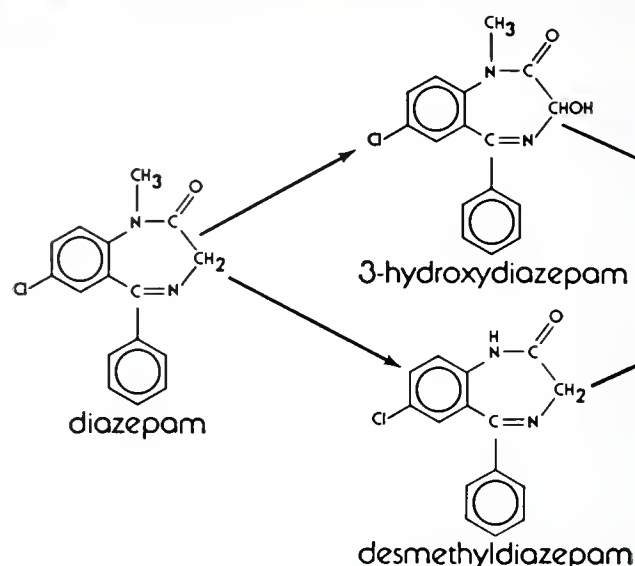
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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Notice on Form 3579 to be sent to Arkansas Medical Society, P. O. Box 1208, Fort Smith, Arkansas 72901. Published monthly under direction of the Council, Arkansas Medical Society, Volume 73, No. 12. Subscription \$2.00 a year. Single copies 50 cents. Entered as second class matter, May 1, 1955, in the post office at Little Rock, Arkansas, under the Act of Congress of March, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 1, 1918. Second-class postage paid at Little Rock, Arkansas.

Chronic Active Hepatitis — A Broad Spectrum

David M. Johnson, M.D.*

Chronic active hepatitis is difficult to define. To most physicians it represents a young woman with progressive liver failure and leads to inevitable hepatic cirrhosis.

Some of the difficulty arises with the diverse etiology of chronic active hepatitis. The classic case is related to immune mechanisms. Less frequent causes are drugs, alcohol, Wilson's disease and continued presence in the blood of hepatitis associated Australia antigen.

Presented herein is a spectrum of this disease with regard to the diverse nature of its presentation regarding age, sex, clinical, biochemical, histologic manifestations and ultimate course.

CASE #1 SMC 5859

This 59-year-old white male was first seen on August 5, 1973, with a history of liver disease for three years. He had jaundice approximately one month prior to that admission. There was no history of alcoholism or hepatitis. Liver biopsy done in the past at the Veterans Administration Hospital had diagnosed chronic active hepatitis. His complaint during this episode was ascites with an episode of hematemesis one month prior to admission.

Physical examination showed ascites with a fluid wave. The liver edge was palpable. There was pre-tibial edema and spider angioma present on the chest.

An Upper GI Series showed no evidence of esophageal varices. There was some scarring present of the duodenal bulb without evidence of actual ulcer present. The hematocrit was 34%. Platelet count was 120,000. The retic count was 2%. The BUN was normal. A total serum protein was 6.0 (albumin 1.8, globulin 4.2). The total bilirubin was 2.2. The alkaline phosphatase was 190. The SGOT was 330.

Our impression was chronic active hepatitis

with superimposed post-necrotic cirrhosis complicated by hypoalbuminemia with secondary ascites, jaundice, elevated alkaline phosphatase, elevated SGOT, anemia and thrombocytopenia. He was seen in the office on August 28, 1973. The total serum protein was 7.5 (albumin 3.1, globulin 4.4). The total bilirubin was 1.8. The alkaline phosphatase was 201 (normal 20 to 115). The SGPT was 71. A liver biopsy on November 29, 1973, showed chronic active hepatitis and post-necrotic cirrhosis.

On November 18, 1973, patient was hospitalized with abdominal pain. He was noted to be more jaundiced at that time. Physical findings showed a jaundiced, acutely ill white male with abdominal tenderness, ascites and edema. The total bilirubin was 19.3 (indirect 11.0). The amylase was 1,088. The alkaline phosphatase was 125. The SGOT was 360. The patient's hospital course was very lengthy but his primary problem was thought to be pancreatitis and chronic active hepatitis with cirrhosis. The patient did poorly and expired December 23, 1973. An autopsy was performed which revealed chronic active hepatitis, post-necrotic cirrhosis, pancreatitis; ascites, splenomegaly, jaundice, acute and chronic pancreatitis and acid peptic disease with an acute ulcer crater.

CASE #2 SMC 5033

This 19-year-old white female was first seen November 5, 1970, with a history of being hospitalized in June, 1970, with jaundice. She was told she had chronic hepatitis, but a liver biopsy was never performed.

She was started on Prednisone 30 mg. daily and later this was tapered. When first seen on November 5, 1970, she gave a history of four to five days previously becoming more jaundiced. There was no history of birth control pills, tranquilizers, no work with cleaning fluid, no family history of

*Searcy Medical Center, P.A., 2900 Hawkins Drive, Searcy, Arkansas 72143.

liver disease, arthritis, exposure to anyone with hepatitis, no blood products, no hepatotoxins, no unusual travel, no history of alcoholism. She denied fever, chills or pruritus.

Examination at that time showed a jaundiced white female. The liver was down 2 cm. The spleen tip was palpable. The physical examination was otherwise normal.

The hematocrit was 45%. The prothrombin time was 17 seconds with control of 13 seconds. The alkaline phosphatase was 3.3 (normal 0.8 to 2.3). The total bilirubin was 5.5. The total serum protein was 8.5 (albumin 2.8, globulin 5.7). The SGOT was 550. The patient was a college student and wished to go home, where she was hospitalized on January 7, 1971, in Salt Lake City, Utah. At that time, she was taking Prednisone 25 mg. daily. The LE Prep was positive at this time. The Australia antigen was negative. A liver biopsy was performed and was compatible with chronic active hepatitis. She was discharged on Prednisone 10 mg. twice daily.

The patient was lost to follow-up after May 9, 1974, and has not been seen since that time. She apparently has moved away.

CASE #3 SMC 2374

This 61-year-old white female was seen first on April 4, 1973. She had a history of increasing fatigue and decreasing appetite with malaise. Current medications she was taking then included Premarin, thyroid, Valium and Bufferin. She had had surgery a year previously for gallbladder disease, at which time a liver biopsy was performed. The biopsy was compatible with chronic active hepatitis. There was no recent history of fever, chills, weight loss, pruritus or alcoholism.

Physical examination at this time was essentially unremarkable. The liver or spleen were not enlarged.

A liver scan was normal. An IV Cholangiogram was normal.

The prothrombin time was normal. The hematocrit was 41%. The sedimentation rate was 38 millimeters per hour. The urinalysis was normal. The SGOT was 285. The alkaline phosphatase was 150 (normal 20-115). The total serum protein was 8.5 (albumin 3.2, globulin 5.3). The total bilirubin was 0.8. Smooth muscle antibodies were positive. The antimitochondrial

test was negative. The Australia antigen was negative. The antinuclear antibody was positive 1 to 80. The purified protein derivative skin test was negative at 72 hours. The patient was started on Prednisone 20 mg. daily.

On May 2, 1974, the patient was hospitalized with leukoplakia of the tongue and mild Cushionoid changes. The antinuclear antibody was negative. The antismooth muscle test was still positive. The total bilirubin was 0.7. The alkaline phosphatase was 8.9. The SGOT was 40. The LE Prep was negative. The protein electrophoresis showed minimal elevation of gamma globulin. She was continued on Prednisone 10 mg. daily.

CASE #4 SMC 2588

This 66-year-old white female was hospitalized on February 25, 1974, because of jaundice. The jaundice was present four days prior to admission. She denied exposure to blood, jaundiced persons, hepatotoxins, pruritus, unusual travel or alcoholism. Gallbladder x-rays were done six months previously and were normal. She had a history recently of weight loss, nausea, anorexia, fever and chills. Recent medications included Lanoxin, Cerespan, Aldomet, Triavil, Bufferin, Phenobarbital and Antivert.

Examination showed a jaundiced white female. The liver edge was down 3 cm. The spleen was not palpable. The remainder of the physical was normal.

A liver scan was normal. The prothrombin time was normal. The hematocrit was 38%. The white blood cell count and differential were normal. The SGOT was 1800. The alkaline phosphatase was 40 (normal 4.5 to 11). The SGPT was 1530. The BUN was 15. The urinalysis was normal. The bilirubin total was 16 mg.% with indirect 9.3 and direct 6.7. The VDRL was negative. The platelet count was 227,000. The Australia antigen was negative. An RA factor was negative. The LE Prep was negative.

On March 3, 1974, the SGOT was 1770. The alkaline phosphatase was 31 (normal 4.5 to 11). The total bilirubin was 11.2. A protein electrophoresis showed the albumin 4.32, Alpha I, 0.68; Alpha II, 0.78; Beta 1.37, Gamma 2.65 with diffuse pattern noted.

On March 10, 1974, the hematocrit was 33%.

The platelet count was 288,000. The SGOT was 649. The alkaline phosphatase was 67 (normal 4.5 to 11). The total bilirubin was 6.2. The reticulocyte count was 3.5%. The antinuclear antibody was positive 1 to 160. The Coombs test was negative. The screening hemolysins were negative. A G6 PD screening test was negative. The prothrombin time was normal. The stool guaiac was negative.

The patient refused a liver biopsy. A PPD skin test was negative prior to steroid therapy. The patient was thought to have chronic active hepatitis on the basis of an elevated SGOT, alkaline phosphatase, bilirubin, gamma globulin (with a diffuse pattern), positive antinuclear antibody and a hemolytic anemia. On March 14, 1974, she was started on Prednisone 60 mg. daily and other medications were discontinued.

On October 25, 1974, the patient stated she had stopped taking Prednisone, since she was doing well and did not want to take medication. It has not been given further.

CASE #5 SMC 743

This 52-year-old white male was hospitalized on April 10, 1973, because of abdominal pain of ten days duration. The pain was in the epigastric area associated with tenderness and cramping. He had not taken antacids in an attempt for relief. Upper GI Series showed evidence of acid peptic disease. Reinforced gallbladder series showed faint visualization thought to be consistent with chronic cholecystitis. He denied exposure to toxic agents or drugs and had been around no one with jaundice and had received no blood transfusions. There was no history of standing in water, unusual travel, recent medication, fever, chills, light-colored stools or weight loss.

Physical examination at the time of admission showed a cooperative white male with normal vital signs. The abdomen was flat. The liver and spleen were not enlarged. There was some tenderness present in the epigastric area. The remainder of the physical examination was normal.

An Upper GI Series showed acid peptic disease without actual ulcer crater present. Reinforced gallbladder series showed faint visualization thought to be consistent with chronic cholecystitis. A barium enema, IVP and liver scan were normal.

The hematocrit and urinalysis were normal. The SGPT was 193. The SGOT was 150. The alkaline phosphatase was 124 (normal 20-115). The total bilirubin was 1.1. A prothrombin time was normal. A PPD skin test was negative at 72 hours. The protein electrophoresis showed a total serum protein of 6.9 (albumin 3.6, Alpha I — 0.4, Alpha II — 3.6, Beta — 0.9, Gamma — 1.25). The day of discharge the SGOT was 190. The alkaline phosphatase was 120.

The patient was re-admitted to the hospital on May 9, 1973, for liver biopsy. At this time, an IV Cholangiogram was done, which was normal. A liver biopsy was compatible with chronic active hepatitis and superimposed post-necrotic cirrhosis. During that hospitalization, a platelet count was 276,000. The total bilirubin was 1.1. A total serum protein 8.0. The albumin was 5.2, globulin 2.8, Alpha I — 0.8, Alpha II Globulin — 0.7, Beta Globulin — 1.2, Gamma Globulin — 1.76, with pattern showing diffuse hypergamma-globulin present. The SGOT was 215. The alkaline phosphatase was 150. The BSP showed 35% retention at 45 minutes. The Australia antigen was positive. The patient was started on Prednisone 30 mg. daily.

Follow-up on January 3, 1975, showed the liver functions normal. He remains asymptomatic on 15 mg. Prednisone daily.

CASE #6 SMC 14,807

This 25-year-old white female was first hospitalized on January 30, 1971, because of jaundice. The patient was essentially well until three to four days prior to admission, when she was noted by colleagues to be jaundiced. There was no exposure to anyone with infectious hepatitis or jaundice. There was no blood transfusions, injections, and she denied history of gallbladder disease, past history of right upper quadrant pain. There was no fever, chills, weight loss, pruritus, arthritis or family history of jaundice.

Physical examination at time of admission showed a jaundiced white female. There was no significant adenopathy, iritis, arthritis, splenomegaly, hepatomegaly, or spider nevi.

A chest film, Upper GI Series, liver scan were normal. An I-131 uptake showed 12% retention at twenty-four hours.

The total serum protein was 8.6 (albumin 3.8, globulin 4.8). The SGOT was 420. The alkaline

phosphatase was 145 (normal 20-115). The total bilirubin was 9.7 (direct 5.9, indirect 3.8). The BUN was normal. A mono test was reactive. The prothrombin time was 17 seconds with a control of 12 seconds. The hematocrit was 40%. The urinalysis was normal. The platelet count was 171,000. The RA factor was positive. The direct and indirect Coombs were negative. An LE Prep was positive. A T4 was 11.6. A protein electrophoresis showed total serum protein 7.80, albumin 2.89, globulin 4.91, Beta globulin 1.16, Gamma globulin 2.96 with a diffuse pattern noted. A PBI was 11.4. The antinuclear antibodies were positive at 1 to 160. A PPD skin test was negative at seventy-two hours. The serum free thyroxine was 2.5. The antithyroid globulin titer was positive 1 to 1024. Repeat T4 was 6.8 (normal was 2.9 to 6.4); normal free thyroxine was 1.0 to 2.1.

A liver biopsy was not done at this time because of elevated prothrombin time. On February 11, 1971, the patient was started on Prednisone 80 mg. every other day. Our impression was chronic active hepatitis manifest by jaundice, increased SGOT and increased alkaline phosphatase, increased Gamma globulin with diffuse pattern, positive LE Prep, positive mono test, elevated prothrombin time, and a positive antinuclear antibody. Thyroiditis was manifest by increased PBI, increased T4 and free thyroxine, increased antithyroglobulin titer, and decreased Iodine 131 uptake.

April 13, 1974, the patient was re-admitted for liver biopsy which was done under local anesthesia in the operating room because of prolonged prothrombin time. The hematocrit was 35%. The reticulocyte count was 4.6%, the platelet count was 218,000. The Ivy bleeding time and clotting time were normal. An LE Prep was negative. The BSP excretion test showed 38% retention in 45 minutes. The prothrombin time was 14 seconds, with a control of 11 seconds. The total bilirubin was 2.2 (direct 0.8). The antinuclear antibody was positive with a 4+ homogenous pattern. The serum complement was normal. The SGOT was 42. The alkaline phosphatase 120 (normal being up to 80). A liver biopsy was done and was compatible with subacute and chronic — "Lupoid hepatitis."

She was last seen by me on July 22, 1974, and was doing well. The physical examination was

normal. There was no icterus. The liver and spleen were not enlarged.

It was recommended that she stay on a regimen of Prednisone 5 mg. Mondays, Wednesdays and Fridays and return in six months for follow-up. She was doing well and was asymptomatic at that date.

CASE #7

SMC 2013

This 58-year-old white female was hospitalized April 13, 1973, because of jaundice. The patient was well until three weeks prior to admission when she noted fever, malaise and nausea. There had been no history of blood products, injections, exposure to jaundiced people or alcoholism. She had a cholecystectomy two years prior to admission. Medications from previous physicians included Donnazyme, Valium, Elavil, Nagua, Thyroid, Indocin and Darvon Compound 65.

Physical examination at the time of admission showed an obese, jaundiced white female. There was no lymphadenopathy or hepatosplenomegaly. The remainder of the physical examination was unremarkable.

X-ray studies — A PA and Lateral Chest was normal. An Upper GI Series showed a large hiatal hernia, otherwise normal. A Liver Scan was normal.

Laboratory data — The Australia antigen titer was negative. The liver biopsy showed chronic active hepatitis with biliary stasis. An antinuclear antibody titer was negative. The SGOT was 1300. The bilirubin total was 10.0 (direct 4.2). The alkaline phosphatase was 262. The total serum protein was 7.7 (albumin 3.7, globulin 4.0). The prothrombin time was 12 (control of 12). The hematocrit was 35 mg. percent. The white blood cell count was 4,300 with 54 polys, 26 lymphs, 12 monocytes, 7 eosinophils and 1 basophil. The platelet count was 523,000.

On April 28, 1973, the patient was started on Prednisone 60 mg. every other day.

On March 25, 1975, the liver functions were normal. Prednisone was discontinued.

When last seen on July 11, 1975, the liver functions were normal. She was continued off Prednisone and was doing well.

Chronic hepatitis is a reaction of the liver manifested by abnormal histology and liver function tests without improvement for six months.¹ Histologically two varieties emerge, chronic per-

sistent and chronic active hepatitis.² All can be associated with hepatitis B antigen and thus considered a sequelae of acute B viral hepatitis. The type A virus may also be incriminated.³ Drug reactions may also produce identical responses such as Isoniazid,⁴ Aspirin,^{5,6} Methyldopa⁷ and Oxyphenisatin⁸ in laxatives.

Chronic active hepatitis implies clinically a chronic syndrome, usually with jaundice and ultimate chronic liver disease. One variety is called "lupoid." Another is posthepatic. It is occasionally seen with Wilson's disease,⁹ Isoniazid,⁴ Aspirin,^{5,6} Methyldopa,⁷ and the laxative Oxyphenisatin⁸ may cause chronic active hepatitis. The liver disease of Alpha, antitrypsin deficiency may be associated with chronic active hepatitis.¹⁰

Decker¹¹ proposed that hepatitis, usually anicteric, was not uncommon in systemic lupus erythematosus and usually due to drugs. The prolonged use of Aspirin might lead to changes compatible with chronic active hepatitis. Some patients might have been changed from classic systemic lupus erythematosus to "lupoid" hepatitis by drugs, particularly Aspirin.

ETIOLOGY

In chronic active "lupoid" hepatitis there are many immunological changes. Serum globulin levels are increased. The positive LE cell leads to the name "lupoid" hepatitis.¹² Antinuclear antibody is present in 30%-50% of patients.¹³

The mitochondrion antibody seen in primary biliary cirrhosis¹⁴ is found in patients with chronic active hepatitis. Sixty percent of patients with chronic active hepatitis have a positive smooth muscle antibody test.¹⁵

Histology in the liver has been said to be similar to those of the rejected hepatic transplant.³ The prognostic value of bridging in subacute hepatic necrosis was described by Boyer.¹⁶ He found the pattern of necrosis and intralobular and interlobular bridging of portal triads/or central veins, when found during acute viral hepatitis, indicated a severe form of the disease that may lead to hepatic failure or development of cirrhosis.

Bridging is therefore a forerunner or cirrhosis described as postnecrotic, multilobular or cryptogenic. Chronic hepatitis with bridging necrosis is a histopathological diagnosis that cannot always be made clinically or with the laboratory.

Since some patients present with a typical attack of viral hepatitis, this has been entertained as a cause of chronic active hepatitis. This type of hepatitis is not likely related to hepatitis with a positive Australia antigen (Type B), as tests for this have been negative in chronic active "lupoid" hepatitis.^{17,18} A relationship to Type A hepatitis has never been proven.

CLINICAL FEATURES

This disease is classically one of young women. However, it can occur in childhood and old age.

Twenty-five percent present as typical acute viral hepatitis.¹⁹ In most cases, however, the patient remains asymptomatic for months or years before the diagnosis is made, usually because of jaundice.³ They may be found sooner if routine testing is done.

The kidney may be involved. Occasionally, lupus nephritis is severe and may progress to renal failure.²⁰

Pulmonary changes have been seen with active disease.²¹

Ulcerative colitis may present with chronic active hepatitis.²²

Serum transaminase and bilirubin are usually elevated. Serum globulin is usually increased with most being Gamma globulin. Serum immunoglobulin G (IgG) is usually elevated. Australia antigen is usually not present in classic "lupoid" hepatitis.^{17,18} Prothrombin time may be increased. A needle biopsy of the liver is the most valuable diagnostic tool, but may become unavailable due to increased prothrombin time.

RELATIONSHIP TO AUSTRALIA ANTIGEN

One form of chronic active hepatitis is associated with Australia antigen.²³ This type differs from the classical variety. Males are usually affected, the onset is abrupt, and associated diseases are uncommon. There may be a clear history of exposure to blood or its products. The hepatic histologic picture can, however, be identical. The value of steroid therapy is not established.

TREATMENT

All forms of chronic active hepatitis are treatable. Those untreated have a poor prognosis.

A controlled type of steroids in chronic active hepatitis was carried out by Sherlock and her co-workers. Analysis showed three of twenty-two steroid-treated patients died, whereas seventeen

of twenty-seven control patients died. Cure of disease was not suggested nor was prevention of cirrhosis. Early deaths, however, particularly in the first two years, were fewer.²⁴

In another series over three years, eleven out of thirty-one patients died when left untreated or when treated with Azathioprine, a drug now been shown to be ineffective, at least alone.^{25,26} Most of the deaths occur early, suggesting that therapy must be given promptly.

A study from Denmark²⁷ showed that female patients, a mean age of sixty years, and who had compensated cirrhosis at time of biopsy, had a sixty percent chance of eight-year survival with treatment, a figure compatible with life expectancy in women of this age.

Prednisone has a marked effect on liver function parameters. The bromosulphthalen excretion is improved in treated over the control group. Albumin levels rose in one year in treated over untreated groups, but in three to five years, both groups were equal.

Results from the Mayo Clinic²⁵ showed eighteen patients in the steroid-treated group and seventeen in the placebo group. Steroids showed decreasing serum bilirubin, SGOT, Gamma globulin levels and piecemeal necrosis. The initial dose was 30 mg. daily of Prednisone with maintenance therapy of 10-15 mg. daily. Attempts were made to stop therapy when serum bilirubin, SGOT and Gamma globulin were normal. Relapse occurred in fifty percent usually within six months of stopping and necessitated restarting the drug.

Azathioprine has been used as treatment. Mackay²⁹ found Azathioprine was effective in improving biochemical tests. There was, however, no improvement in any index after the three-month period.

In the Mayo Clinic group,²⁵ a group of patients received Azathioprine and did not do as well as the Prednisone group. More developed jaundice, ascites and died. Azathioprine should be reserved for those with complications of steroid therapy, when a condition such as diabetes or tuberculosis interferes with its use or control, or when control is not achieved with Prednisone alone.

Death from chronic active hepatitis should be uncommon. Studies from Danish, British and Mayo Clinic have shown treatment with steroids

to be effective. Treatment should be on a daily basis as alternate day therapy is less effective. Steroid therapy should be used for at least six months. Relapses usually develop within three months after stopping treatment. Complications are not much of a problem if maintenance of Prednisone is not more than 15 mg. daily.

Henley³⁰ proposes to titrate the patients symptoms and biochemical tests against dose of Prednisone and to modify dosage according to liver biopsy evidence of activity at yearly intervals. He lists no patient as being in an indefinite remission until all variables, including morphologic, have remained quiescent for at least six months while patient off therapy.

PROGNOSIS

This is variable. If the course is one of rapid deterioration, the ultimate course is that of cirrhosis. In one series it stated two-thirds die within five years of onset of symptoms.¹⁹ Mortality is greatest during the most active first two years. The question of cirrhosis is always present and most patients end with this lesion. However, Summerskill² says that with adequate steroid treatment a return to totally normal hepatic histology can take place. Thus, an estimate of prognosis would be as follows:

Twenty-five to thirty percent of patients — the prognosis is good, and there is a sustained remission after withdrawal of drugs. In fifty percent, a remission will depend on continuous therapy for years. At least ten years of survival could be suggested. But in twenty to twenty-five percent the disease progresses with therapy and death occurs in three to five years.³¹

Today in chronic active hepatitis optimism can be based on current therapy which can usually preserve life and even result in a clinical cure.

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David M. Johnson, M.D.

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BIBLIOGRAPHY

1. Sherlock, S.: *Chronic Hepatitis, Diseases of the Liver and Biliary System*, 5th Edition, Blackwells, Oxford 1974.
2. Summerskill, W. H. J.: *Chronic Active Liver Disease Re-Examined Prognosis Hopeful*. *Gastroenterology* 66: 450-464, 1974.

3. Sherlock, S.: Progress Report — Chronic Hepatitis. *GUT* 15: 581-597, 1974.
4. Maddrey, W. C., and Boitnott, J. K.: Isoniazid Hepatitis. *Ann Intern Med.* 79: 1-12, 1973.
5. Seaman, W. D., Ishak, K. G., Plotz, P. H.: Aspirin-induced Hepatotoxicity In Patients With Systemic Lupus Erythematosus. *Ann Intern Med.* 80: 1-8, 1974.
6. Wolfe, J. D., Metzren, Allan L., Goldstein, R. C.: Aspirin Hepatitis. *Ann Intern Med.* 80: 74-76, 1974.
7. Elkington, S. G., Schreiber, W. M., and Conn, H. O.: Hepatic Injury Caused By L-Alpha-Methyl-Dopa. *Circulation* 40: 589-595, 1969.
8. Reynolds, T. B., Peters, R. L., and Yamada, S.: Chronic Active and Lupoid Hepatitis Caused By a Laxative, Oxyphenisatin. *New Eng J Med* 285: 813-820, 1971.
9. Sternlieb, I., and Schenberg, I. H.: Chronic Hepatitis As A First Manifestation of Wilson's Disease. *Ann Intern Med.* 76: 59-61, 1972.
10. Berg, N. O., and Eriksson, S.: Liver Disease in Adults With Alpha Antitrypsin Deficiency. *New Eng J Med* 278: 1264-1276, 1972.
11. Decker, et al.: Systemic Lupus Erythematosus. *Ann Intern Med.* 82: 399, 1975.
12. Mackay, I. R., Taft, L. I., and Cowling, D. C.: Lupoid Hepatitis. *Lancet* 2: 1323-1326, 1956.
13. Bouchier, I. A. D., Rhodes, K., and Sherlock, S.: Serological Abnormalities in Patients With Liver Disease. *Brit Med J* 1: 592-594, 1964.
14. Walker, J. G., Doniach, D., Roitt, I. M., and Sherlock, S.: Serological Tests in Diagnosis of Primary Biliary Cirrhosis. *Lancet* 1: 827-831, 1965.
15. Johnson, G. D., Holborow, E. J., and Glynn, I. E.: Antibody to Smooth Muscle in Patients With Liver Disease. *Lancet* 2: 878-879, 1965.
16. Boyer, J. L., and Klatskin, G.: Pattern of Necrosis In Acute Viral Hepatitis — Prognostic Value of Bridging. *New Eng J Med.* 283: 1063-1071, 1970.
17. Matthews, J. D., and Mackay, I. R.: Australia Antigen in Chronic Hepatitis In Australia. *Brit Med J* 1: 259-261, 1970.
18. Bulkley, B. H., Heizen, W. D., Goldfinger, S. E., Isselbacher, K. J., and Shulman, N. R.: Distinctions in Chronic Active Hepatitis Based On Circulating Hepatitis Associated Antigen. *Lancet* 2: 1323-1326, 1970.
19. Mistilis, S. P., and Blackburn, C. R. B.: Active Chronic Hepatitis. *Am J Med* 48: 484-495, 1970.
20. Bridi, G. S., Falcon, P. W., Brackett, N. C., Jr., Still, W. J. S., and Sporn, I. N.: Glomerulonephritis and Renal Tubular Acedrosis in a Case of Chronic Active Hepatitis and Hyperimmunoglobuloneemia. *Am J Med* 52: 267-278, 1972.
21. Read, A. E., Sherlock, S., and Harrison, C. V.: Active "Juvenile" Cirrhosis Considered As Part of a Systemic Disease and the Effects of Corticosteroid Therapy. *GUT* 4: 378-393, 1963.
22. Holdsworth, C. D., Hall, E. W., Dawson, A. M., and Sherlock, S.: Ulcerative Colitis in Chronic Liver Disease. *Quart J Med* 31: 211-227, 1965.
23. Sherlock, S., Fox, R. A., Niazi, S. P., et al.: Chronic Liver Disease and Primary Liver-Cell Cancer With Hepatitis-Associated (Australia) Antigen in Serum. *Lancet* 1: 1243, 1970.
24. Cook, S. C., Mulligan, R., and Sherlock, S.: Controlled Prospective Trial of Corticosteroid Therapy in Active Chronic Hepatitis. *Quart J Med* 40: 159-185, 1971.
25. Solomon, R. D., Summerskill, W. H. J., Bassensoss, A. H., et al.: Clinical Biochemical and Histological Remission of Severe Chronic Active Liver Disease: A Controlled Study of Treatment and Early Prognosis. *Gastroenterology* 63: 820-833, 1972.
26. Murry-Lyon, I. M., Stern, R. B., Williams, Roger: Controlled Trial of Prednisone and Azathioprine in Chronic Active Hepatitis. *Lancet* 1: 735-737, 1973.
27. Report From The Copenhagen Study Group For Liver Diseases. Sex, Ascites, and Alcoholism In Survival of Patients With Cirrhosis. *New Eng J Med* 291: 271-273, 1974.
28. Cook, G. C., Velasco, M., and Sherlock, S.: Effect of Corticosteroid Therapy on Bromsolphthalen Excretion in Active Chronic Hepatitis. *GUT* 9: 270-283, 1968.
29. Mackay, I. R.: Chronic Hepatitis: Effects of Prolonged Suppression Treatment and Comparison of Azathioprine With Prednisone. *Quart J Med* 37: 379-392, 1968.
30. Henley, K. R., Appleman, H. D.: The Fading Menace of Chronic Hepatitis. *Ann Intern Med* 82: 840, 841, 1975.
31. Mackay, I. R.: The Prognosis of Chronic Hepatitis. *Ann Intern Med* 73: 649-651, 1972.



Hypoglycemia Associated with Congenital Syphilis

Robert H. Fiser, Jr., M.D. and Terry Yamauchi, M.D.*

INTRODUCTION

Congenital syphilis is increasing in the United States.^{1,2} This paper describes an infant with congenital syphilis in whom the major therapeutic problem was severe hypoglycemia.

CASE REPORT

A five-week-old Mexican-American girl was brought to the hospital because of progressive abdominal swelling. The infant was a product of full term gestation, an uncomplicated pregnancy and delivery. The birth weight was seven pounds three ounces.

Abdominal distention and intermittent vomiting was first noted at age two weeks. The vomiting usually occurred after feeding and was not influenced by smaller feedings or positioning of the infant. The patient had no bowel movements for the previous two days. Because of the progressing abdominal swelling, the infant was referred to this hospital.

PHYSICAL EXAMINATION

The physical examination upon admission revealed an ill-appearing, pale, jaundice infant with a grossly distended abdomen. Her vital signs were: temperature 96° (Axillary), respiratory rate 60/minute, pulse 120/minute, weight 4660 grams, and blood pressure 70/30. The distended abdomen measured 44 cm. in girth and an umbilical hernia was present. No tenderness, fluid or shifting dullness was appreciated. Liver and spleen were palpable 7 cm below the costal margin. Bowel tones were hypoactive. Symmetrical pitting edema was present in the lower extremities, thighs, buttocks and labial folds. Neurologically the infant was lethargic with a poor response to pain and decreased tone. The remainder of the physical exam was normal.

LABORATORY STUDIES AND HOSPITAL COURSE

Laboratory studies, upon admission, revealed multiple abnormalities including: Hematocrit of 13.6; platelet count of 30,000; fibrinogen 190 mg%; blood glucose 52 mg%, total bilirubin 6.3 mg% (2.0 direct); total serum protein 4 g%;

alkaline phosphatase 150 mU/ml; and SGOT 55 mU/ml. Twelve hours after admission a bradycardia developed and a repeat blood glucose was 15 mg%. An intravenous push of 4 cc of 50% dextrose alleviated the bradycardia. The blood glucose remained in the 20-30 mg% range while on 15 to 20% glucose solutions intravenously. On hospital days two and three, 25% glucose was infused continuously and on three occasions bolus injections of D50W were required to maintain a normal blood sugar. Attempts to obtain steady state levels of glucose and allow assessment of glucose utilization rate were unsuccessful at rates of 15 mg/kg/minute over three to four hours but produced constant blood glucose levels at 20 mg/kg/minute. On the second hospital day, the infant was found to have a positive VDRL titer of 1:128, the mother's VDRL was positive at 1:16. Both infant and mother displayed a reactive fluorescent treponema antibody absorption test. Radiographic studies of the long bones revealed multiple areas of periosteal elevation and metaphyseal destruction. On the basis of these findings, the diagnosis of congenital syphilis was established and a ten-day course of aqueous penicillin, 100,000 units/kg/day in six divided doses was administered intravenously. Methylprednisolone sodium succinate was begun with the penicillin therapy, 2.7 mg intravenously followed by 0.7 mg intravenously every six hours over four consecutive days. Bacteria and viruses were not recovered from blood, urine and cerebrospinal fluid specimens. Serological studies for rubella, toxoplasmosis and cytomegalovirus were also negative.

By hospital days four and five, the patient began to improve clinically as evidence by maintaining blood glucose levels in the normal range, decreasing edema, decreasing size of liver and spleen, and increased motor activity. Currently, followed at monthly intervals, radiographic studies are normal, and the infant has maintained steady growth and development.

DISCUSSION

This infant presented many of the classic findings of congenital syphilis, i.e., hemolytic anemia, thrombocytopenia, hepato-splenomegaly, and typ-

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ical radiographic findings; all of which resolved or improved with therapy. The most persistent and difficult therapeutic problem was hypoglycemia.

Heretofore, hypoglycemia has not been described associated with congenital syphilis. In this case, the etiology of the persistent hypoglycemia is difficult to ascertain, as prior dietary intake was not well defined and the infant was undoubtedly in a catabolic state but investigations have demonstrated altered carbohydrate metabolism in both bacterial and viral infections. A multitude of metabolic effects are known to occur during infectious illnesses.³ Yeung has reported significant hypoglycemia during sepsis in newborns⁴ and Felig, et al., have reported similar findings in young adults with acute viral hepatitis.⁵ Hyperglycemia has been documented during experimental viral infections in man⁶ and following endotoxin administration in primate models.^{7,8}

The mechanism(s) responsible for these disorders of carbohydrate metabolism remain obscure. Yeung has shown that glucose utilization is increased in infants with sepsis, suggesting that increased utilization might be an important factor in infants with hypoglycemia.⁹ Defects at the hepatic level secondary to syphilitic involvement could impair hepatic glucose production and contribute to hypoglycemia. However, in the present case enhanced glucose disposal seems to have contributed more importantly since the serum glucose remained depressed even in the face of glucose infusion rates as high as 15 mg/kg/minute and provides indirect evidence for increased glucose utilization.

This case emphasizes again the importance of

considering syphilis "the great imitator" in any differential diagnosis. It also emphasizes the need for closely monitoring blood sugar level in any seriously ill infant particularly during an infectious illness.

SUMMARY

Hypoglycemia has not been reported in association with congenital syphilis. An infant with congenital syphilis is described in whom the major therapeutic problem was hypoglycemia. The possible mechanism(s) responsible for altered carbohydrate metabolism during infection are discussed.

REFERENCES

1. Hoffman, E.D., and Herweg, J. C.: Status of serological testing for congenital syphilis. *Pediatr* 71:686-690, 1967.
2. Al-Salihi, F. L., Curran, J. P., and Shteir, O. A.: Occurrence of fetal syphilis after a nonreactive early gestational serologic test. *Pediatr* 78:121-123, 1971.
3. Beisel, W. R.: Interrelated changes in host metabolism during generalized infectious illness. *Am Clin Nutr* 25:1254-1260, 1972.
4. Yeung, C. Y.: Hypoglycemia in neonatal sepsis. *J Pediatr* 77:812-817, 1970.
5. Felig, P., Brown, W. V., Levine, R. A., and Klatskin, G.: Glucose homeostasis in viral hepatitis. *N Engl J Med* 283:1436-1440, 1970.
6. Lees, R. S., Fiser, R. H., Beisel, W. R., and Bartelloni, P. J.: Effects of an experimental viral infection on plasma lipid and lipoprotein metabolism. *Metabolism* 21:825-33, 1972.
7. Fiser, R. H., Denniston, J. C., and Beisel, W. R.: Host fuel interrelationships during infection. *Pediatr Res* 6:398, 1972.
8. Cryer, P. E., Herman, C. M., and Sode, J.: Carbohydrate metabolism in the baboon subjected to gram-negative (*E. Coli*) septicemia I. Hyperglycemia with depressed plasma insulin concentrations. *Ann Surg* 174:91-100, 1971.
9. Yeung, C. Y., Lee, V. W. Y., and Yeung, M. B.: Glucose disappearance rate in neonatal infection. *Pediatr* 82:486-489, 1973.



Primary Brain Tumors Can Occur Bilaterally—Report of a Case with Some Unusual Roentgenographic Findings*

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This communication reports the case of one of our patients who developed a right-sided intracerebral mass lesion which was treated with

radiotherapy with temporarily satisfactory results, but who subsequently developed a left-sided lesion.

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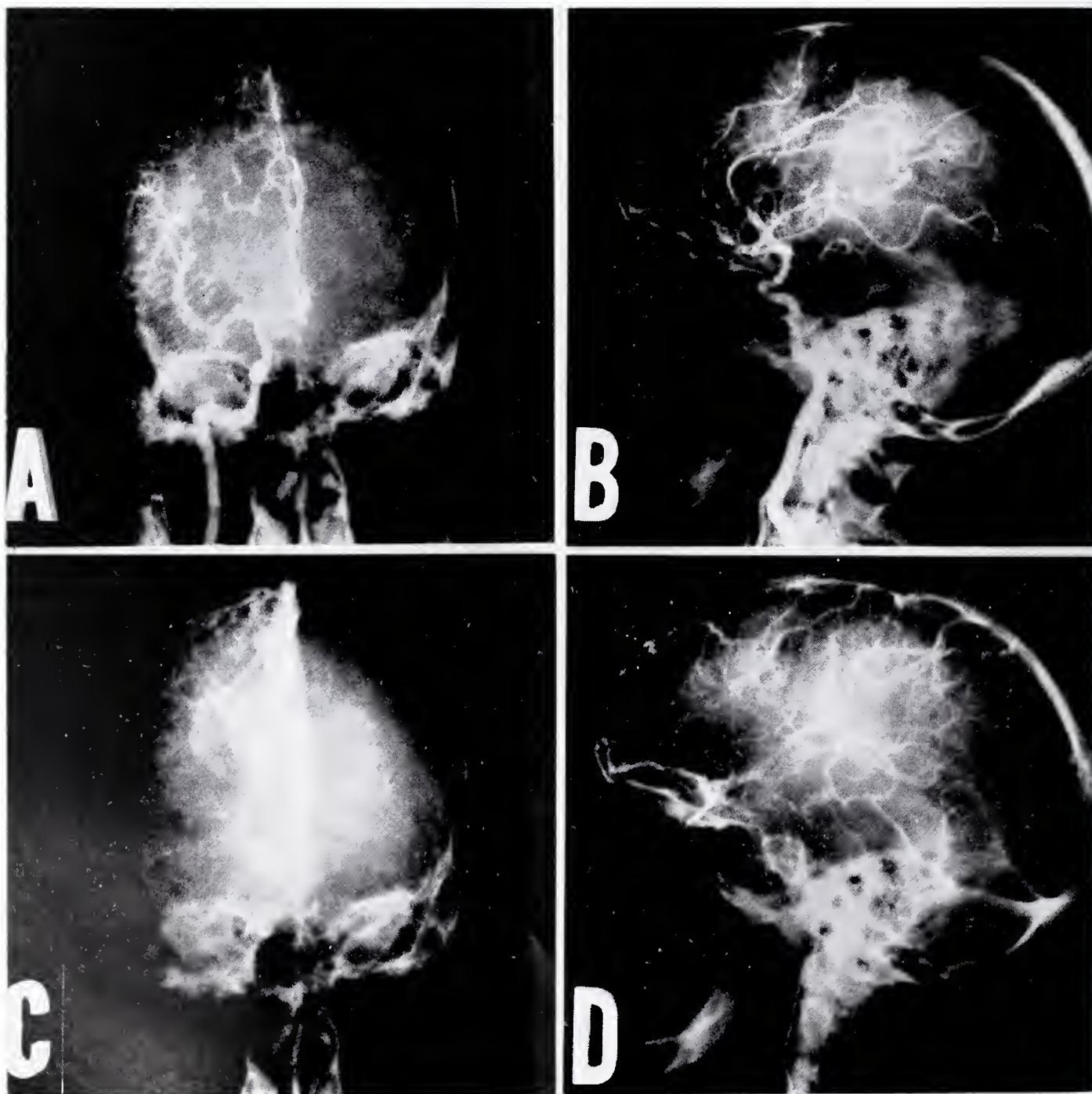


Figure 1.

Initial (pre-radiotherapy) right carotid arteriogram. Panels A and B are arterial phase Towne's and lateral projections; panels C and D are the corresponding venous phases. Panels A and C show the anterior cerebral artery complex and the internal cerebral vein to be displaced from right to left. The thalamostriate vein is also carried across the mid-line by the displacement.

CASE REPORT

The patient was a 49-year-old white male who presented with a history of constant headaches, nausea, dizziness, and ataxia of two months' duration. Immediately before admission he had several confusional episodes and was told that he had had a convulsion. Initial physical and neurological examination showed no abnormalities. A ^{203}Hg brain scan was negative. An EEG showed a slow focus in the right temporal and parietal areas. An echoencephalogram demonstrated an 8 mm shift of the midline from right to left. Bilateral carotid arteriograms (Figures 1

and 2) and a pneumoencephalogram-ventriculogram (Figure 3) indicated a deep parietotemporal lesion within the right hemisphere. Because the roentgenograms suggested involvement of the thalamus, a craniotomy was not performed. Instead, the patient received a mid-line dose of 4875 rads of ^{60}Co gamma radiation in five weeks. The entire cranial vault was homogeneously irradiated.

Following the radiotherapy, the patient was discharged on anticonvulsant medication. Although he initially showed improvement, his mental status deteriorated over the period of the

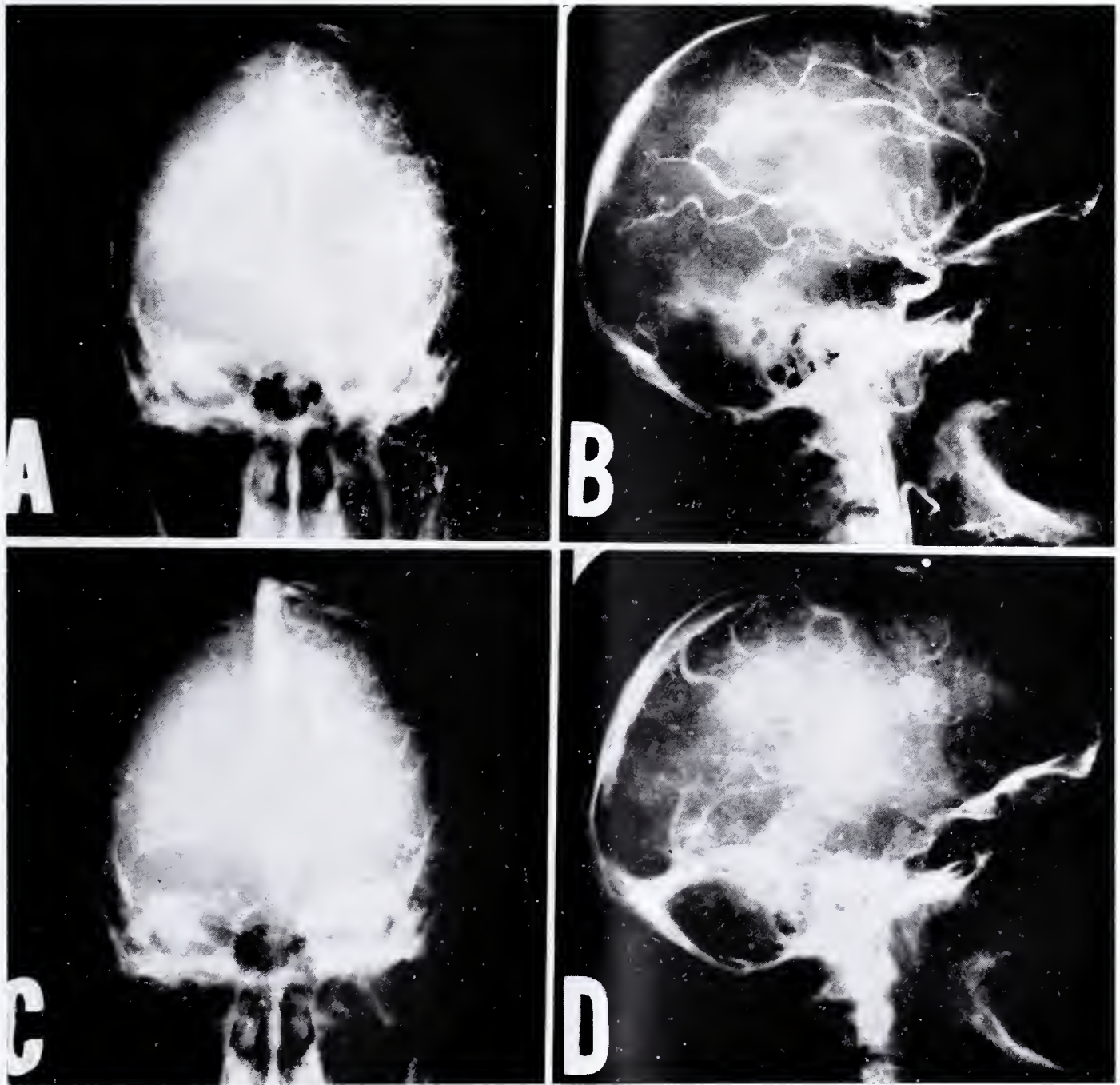


Figure 2.

Initial (pre-radiotherapy) left carotid arteriogram. Panels A and B are arterial phase Towne's and lateral projections; panels C and D are the corresponding venous phases. The arterial and venous phases seen in panels A and C reflect the displacement seen in Figure 1. The internal cerebral vein is displaced 8 mm from right to left. The septal vein is kinked and bowed upward, somewhat.

next few months. He was seen as an outpatient five months after the completion of his radiotherapy, because of seizures. Although an echoencephalogram showed return of the mid-line of the brain to its normal position (which would suggest regression of the tumor), the patient's mental condition had further deteriorated.

He was seen again two months later (6 months after radiotherapy). Although his mental status was essentially unchanged, he had developed a right homonymous hemianopsia since the previous visit. He was re-admitted (7 months after radiotherapy) with physical signs suggestive of a *left-sided* lesion. Neurological examination showed a right hemiparesis, a right Hoffman's sign, and a right Babinski sign. An EEG showed bilateral cerebral dysfunction — greater on the right. A ^{99}Tc brain scan showed increased concentration of the radioisotope in the left parietotemporal region. A left carotid arteriogram (see Figure 4) demonstrated a large frontoparietal mass.

Tissued removed via bilateral craniotomies showed Astrocytoma Gr. II. Postoperatively, the patient's condition deteriorated, and he expired (8 months after radiotherapy).

At autopsy, the principal findings were confined to the brain. Coronal sections (Panels A and B of Figure 5) showed reddish orange,

slightly firm, poorly demarcated lesion on the left. Microscopic examination showed this to be a cellular Astrocytoma — Grade III — with rather marked pleomorphism. Sections from the operative site in the right hemisphere confirmed the biopsy diagnosis of Astrocytoma — Grade II — made at the time of surgery. Of interest, the tumor showed no evidence of radiation induced histologic changes — although the patient received almost 5000 rads of ^{60}Co gamma radiation.

DISCUSSION

While multiple primary brain tumors do not occur very often, a number of cases have been reported in the literature.¹ We have found reports of two cases where a "back-and-forth" shift of the mid-line was demonstrated — either radiographically or by autopsy.^{2,3} One of these cases (reported by Batzdorf and Malamud) had a clinical course which was very similar to our patient. Initially, a *left* parasagittal lesion was demonstrated roentgenographically. Although a biopsy was performed, no tumor was detected. The patient received roentgen therapy. Two years later, clinical signs of *right* side lesion appeared. At autopsy, bilateral tumors (gliomas) were found.

Some semantic difficulties arise when describing a pleurality of histologically similar primary brain tumors. By definition, multiple (or dis-

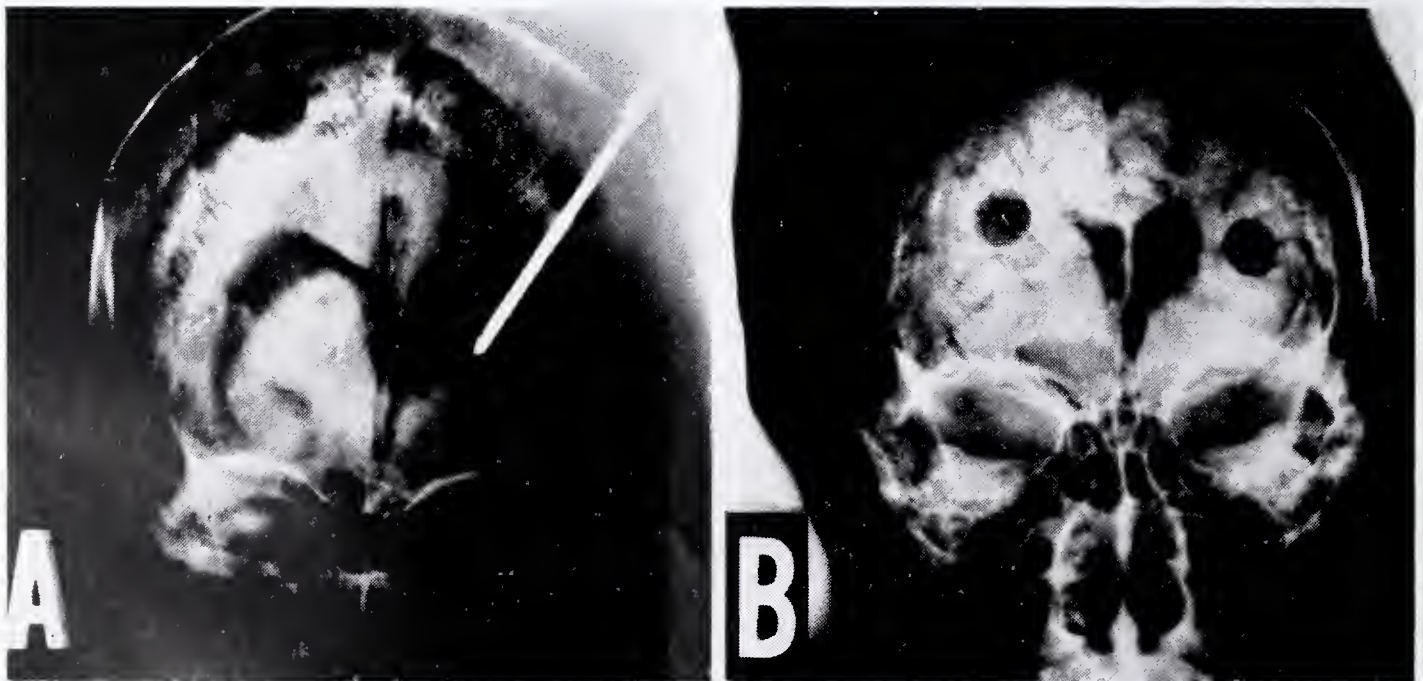


Figure 3.

Pneumoencephalogram-ventriculogram (pre-radiotherapy). The ventricular needle was placed first (via burr holes); additional air was introduced via the lumbar route. Panel A (horizontal beam, left side down) shows excessive fullness in the deep temporal region. There is an associated impression on the right temporal horn. Panel B (horizontal beam, patient erect) shows dilatation of the third and left lateral ventricles together with a pressure defect on the right lateral ventricle. The corpus callosum is distorted and the septum pellucidum is displaced from right to left.

seminated) tumors are those which are seeded by a parent tumor.^{3,4} Multicentric tumors, on the other hand, seem to arise from several geographically separated foci. Since our patient had tumor in both cerebral hemispheres without evidence of cross communication, we believe that the lesion would fall into the group of multicentric tumors.

The response of the patient to the radiation leads to some confusion. Initially, he had a right-sided lesion which produced a right-to-left shift which was demonstrated by several means — including echoencephalography. A second echo-

encephalogram made some six months after radiotherapy indicated a return on the mid-line to the proper position. Later evidence — radiographic and autopsy — showed a left-to-right shift. The question is then, did the shifting mid-line result from a regression of the right side lesion followed by the appearance of the lesion on the left, or were both lesions present initially, the right side lesion responding more favorably to radiation, and the left side lesion enlarging after therapy.

A review of the roentgenograms suggests that

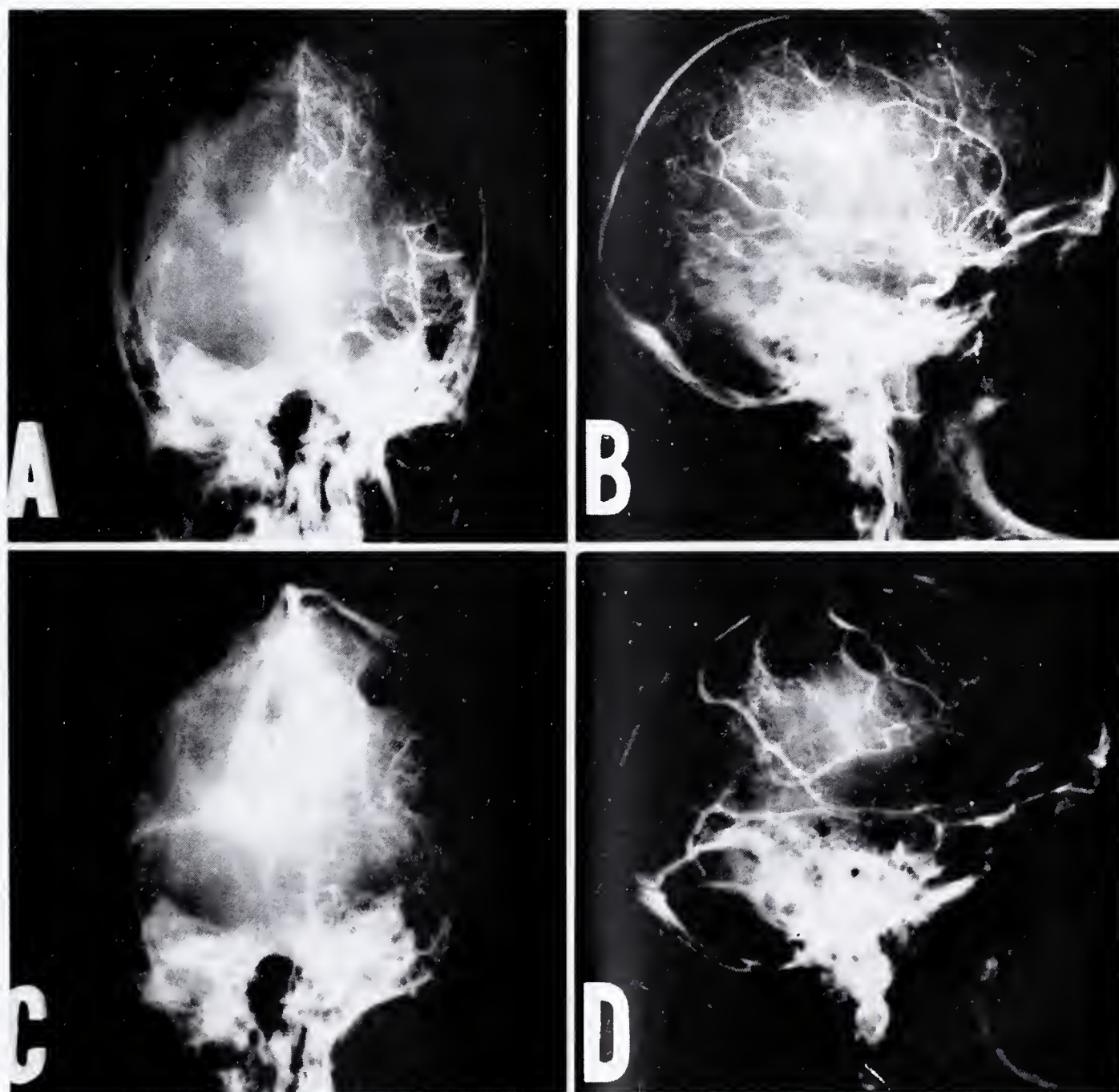


Figure 4.

Second (post-radiotherapy-preoperative) left carotid arteriogram. This examination was performed some nine months after the arteriograms shown in Figures 1 and 2. Panels A and B are arterial phase Towne's and lateral projections; panels C and D are the corresponding venous phases. Panels A and C show a marked displacement of the anterior cerebral artery complex and the deep intracerebral veins from left to right. The angiographic sylvian point has been displaced inferiorly. A large area of abnormal vasculature (tumor stain) occupies the parasagittal region. Panels B and D show a large parietotemporal area of abnormal vasculature which is projected over a "U" shaped deformity of the callosal marginal artery (compare with Figure 2).

PRIMARY BRAIN TUMORS CAN OCCUR BILATERALLY — REPORT OF A
CASE WITH SOME UNUSUAL ROENTGENOGRAPHIC FINDINGS

abnormal changes were present on the initial series of studies which are compatible with the presence of a coexisting left side tumor. Panels A and B, Figure 2, show minimal depression of the lateral limb of the middle cerebral "t" together with a slight depression of the roof of the opercular triangle. Granted, these changes are minimal and were visualized in retrospect. They do, however, suggest that bilateral tumors were present initially.

SUMMARY

A case is described of a patient with bilateral Astrocytomas, who initially showed evidence of a right hand lesion, received radiotherapy, and

who subsequently showed evidence of a left side lesion. We feel that the patient probably had both lesions initially. The right-sided lesion was at first the more prominent, but it responded to radiation. The left-sided lesion enlarged after the radiotherapy.

REFERENCES

1. Batzdorf, U., and Malamud, N.: The Problem of Multicentric Gliomas. *J. Neurosurg.*, 20:122-136, 1963.
2. Feiring, E. H., and Davidoff, L. M.: Two Tumors, Meningioma and Glioblastoma Multiforme in One Patient. *J. Neurosurg.*, 4:282-289, 1947.
3. Madonick, M. J., Shapiro, J. H., and Torack, R. M.: Multiple Diverse Primary Brain Tumors. *Neurology*, 11:430-436, 1961.
4. Pineda, A.: Multicentric Gliomas. *J. Neurosurg.*, 21: 805-811, 1964.

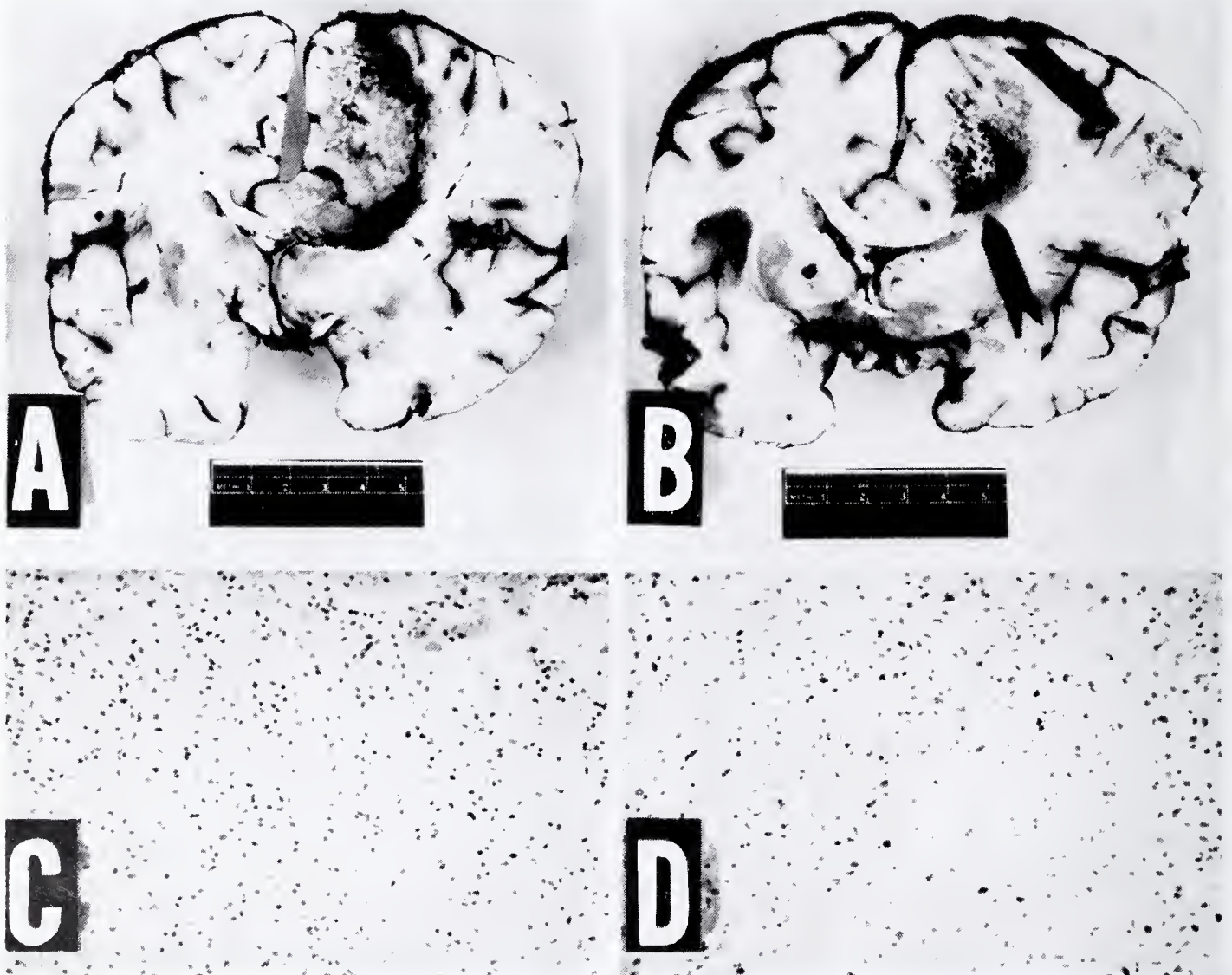


Figure 5.

Coronal sections and photomicrographs (H and E stain) of the brain. Panels A and B show the extensive tumor and hemorrhage involving the left cerebral hemisphere. The arrows in Panel B show the extent of the involvement by the tumor. The diffuse tumor on the right is not visually apparent. Panel C is a photomicrograph of the right-sided lesion — fibrillary Astrocytoma Gr. II ($\times 150$). Panel D is a photomicrograph of the left-sided lesion which shows a slight increase in cellular pleomorphism as compared with the right (Panel C).



Office Orthopaedics

A Method of Elevating the Hand and Forearm

Kenneth G. Jones, M.D.*

All surgeons are aware of the benefits which may accrue to inflamed tissues from elevation of the affected area. Gravity acts to enhance drainage of the venous and lymphatic systems. The interstitial hydrostatic pressure is reduced; perfusion of the limb is improved when the arterial system is adequate. Pain is diminished, and the healing process is augmented.

The question is not whether or not to elevate the damaged hand, but how can one most readily and effectively accomplish this end? Perhaps the most frequently used means for this purpose are elevation on pillows and suspension from an IV stand. Both are inadequate, and neither is wholly comfortable for the patient. To overcome these objections, the author has devised a system of elevation which is both effective and comfortable. Also it is inexpensive. Ice packs can be applied and retained where desired when indicated. Dressings can be changed without sacrificing elevation of the limb.

A simple arm board, Figure I, made from three-quarter inch (1.9 cm.) plywood, when supported by the ubiquitous overhead bed frame, has proven to be most efficacious. The rigid forearm and hand support board designed by the author, Table I, was constructed specifically for the Zimmer bed frame used in the hospital where he practices. However, the system should prove to be compatible with other frames. The board can be constructed by the maintenance department of most hospitals. The forearm control panels, as seen in Figure I, are effective in con-



Figure 1

trolling the forearm and hand when the patient is asleep but are not essential and may be eliminated to further simplify construction. When ordered by the treating physician, the device is applied to the patient's bed by the traction orderly. It is possible to support the board at any angle of inclination. However, a position near 45 degrees of elevation is usually ordered as this is the angle of greatest comfort and secures most of the benefits of elevation.

The lower end of the board rests on the mattress while the upper end is supported by positioning an IV post with a clamp which is attached to the bed frame at the level indicated to secure the desired angle of inclination. The round end of the IV post passes through the proper hole in the board made for this purpose.

If cold is indicated, a bag of ice can be positioned over or under the hand or forearm and maintained by a loop of gauze secured to the IV post which extends through the board. This, too, is comfortable for the patient.

Patients who have experienced this means of hand and forearm elevation have not found it unpleasant. Their surgeon has found it totally satisfactory.

Table I

Material — 3/4 inch plywood (1.9 cm.)
Length — 48 inches (122 cm.)
Width — 8 1/8 inches (20.6 cm.)
Forearm control panels — 1 1/8 inches deep (2.85 cm.), 16 inches long (40.6 cm.)
Holes — 1/2 inch diameter (1.27 cm.)
Base to first hole — 19 3/4 inches (50.15 cm.)
First seven holes — 3 1/2 inches centers (8.9 cm.)
Seventh and eighth holes — 1 1/2 inches centers (3.1 cm.)
Support — 4 inches IV post with clamp (10.16 cm.), 1/2 inch diameter (1.27 cm.)

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ELECTROCARDIOGRAM



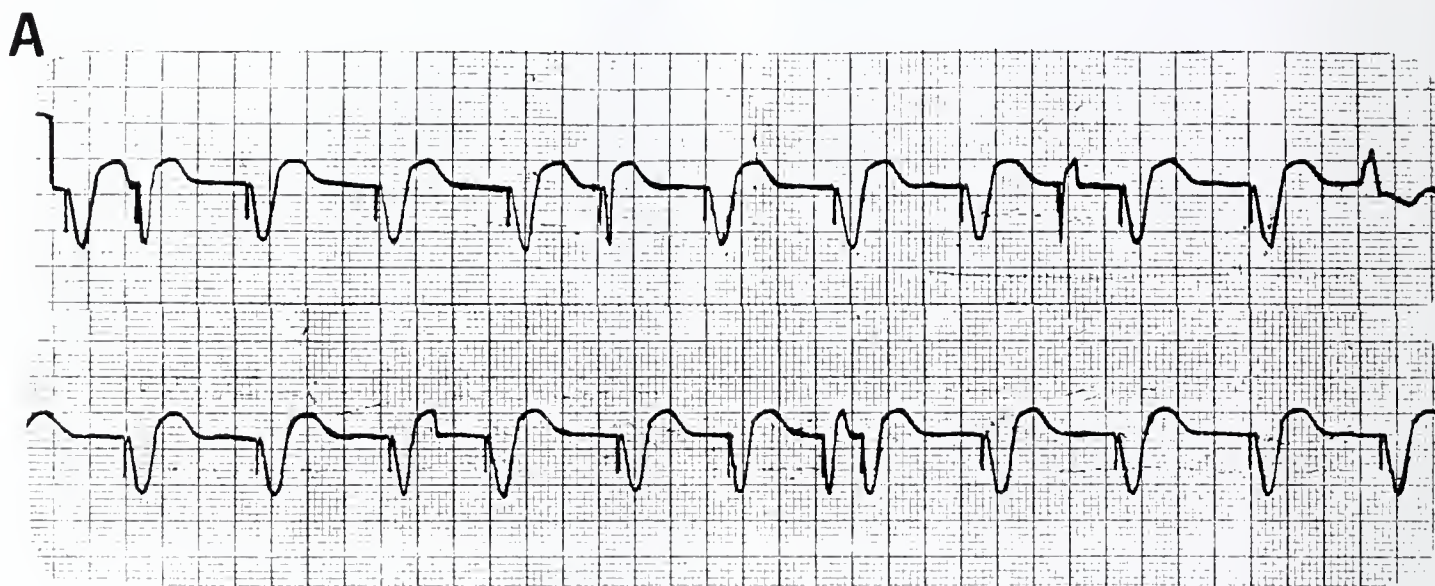
OF THE MONTH



The Department of Cardiology, University of Arkansas College of Medicine

(See Answer on Page 517)

Patient with a Medtronic 5950 Pacemaker (Bipolar ventricular inhibited) who has atrial fibrillation with a very slow ventricular response. The patient is asymptomatic. Rhythm Strip A was taken the day prior to Rhythm Strip B. The A strips are not continuous.



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A Hypertension Control Project for Arkansas

David Crittenden, M.D.*

The Arkansas Department of Health will soon make a major effort in the identification, referral, and follow-up care of persons with hypertension. The HYPERTENSION CONTROL PROJECT will have many aspects, among them public and professional education and some hypertensive screening. Its main thrust will be different than that of similar efforts by other health agencies in the past. In this program major emphasis will be placed on the follow-up care of hypertensive patients referred by physicians in the community, utilizing the public health nurse as a monitor of the degree of blood pressure control. A key aspect of the nurse's role is that she will be allowed, under direct written order of the referring physician, to make dietary, activity, or medication changes in the patient's antihypertensive regimen.

Clearly hypertension has become a major public health problem today. Some estimates place the number of hypertensive persons in the United States at 15-18 million people. Many people identified as hypertensive are never treated. An additional substantial number of those treated never achieve blood pressure control. These facts are discouraging because diastolic blood pressure of greater than 105 millimeters of mercury materially shortens life through a higher incidence of stroke, myocardial infarction, and congestive heart failure, and lowering of blood pressure with drugs substantially decreases the incidence of morbid cardiovascular events.

The hypertension "epidemic" has not gone unrecognized by public health authorities. Control studies of groups of hypertensive patients and screening of unselected populations have yielded

partial answers to important questions. We now know what a "dangerous" level of blood pressure is, if not precisely what a "safe" level is. Most elevated blood pressure is essential in nature and must be attacked pharmacologically. Lowering of elevated diastolic blood pressure of 105 millimeters or greater is clearly of benefit to the patient.

Follow-up of screened populations has also exposed an unfortunate fact. Most referred hypertensive patients do not achieve blood pressure control.

Clearly a gap in the management in the hypertensive patient exists. It is this gap that the Hypertension Control Project addresses. The name of the program itself implies its aim—to not only identify the patient with hypertension, but keep him on his medication and his blood pressure as well controlled as possible. Utilizing the public health facilities in each county and the public health nurse as a physician extender, the physician will be able to focus his attention on the initial evaluation of the hypertensive patient, evaluation of target organ damage, identification of other cardiovascular risks factors and initiation of treatment. The public health nurse trained in hypertensive management may then share with the doctor the task of continuing follow-up care of the patient. We hope this program will provide a needed service to Arkansas physicians as well as to the public.

Pilot programs of the Hypertension Control Project will be instituted in certain areas of the State immediately. Physician will be hearing more of this effort through their county health department, their county medical society, and through hospital staff meetings.

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EDITORIAL

DeLuca on Vitamin D

Alfred Kahn, Jr., M.D.

H. F. DeLuca has published a landmark review entitled "Vitamin D Endocrinology" (Annals of Internal Medicine, Volume 85, page 367, September, 1976). In this paper, he discussed how Vitamin D is altered to literally become a hormone. The relationship of vitamins to hormones and to metabolism is a fascinating subject; the ingestion of some of the Vitamin B complexes is known to provide the body with chemical substances, act as promoters or stimulators of certain essential chemical processes. Now, the cycle of Vitamin D function has been largely worked out.

DeLuca points out that Vitamin D itself must be chemically changed before it can become "active." Vitamin D's major job is to raise the plasma level of calcium and phosphorous from its sources of supply. This is accomplished in several ways. One way is to promote the absorption of calcium from the intestine; this requires energy and is not a passive process; the same applies to phosphate—which is also absorbed under the stimulus of Vitamin D. Another activity of Vitamin D is to mobilize calcium from bone; in the presence of parathormone, Vitamin D decalcifies old bone to help supply calcium for new bone. Lastly, Vitamin D is thought to increase the reabsorption of renal calcium; the renal effect of Vitamin D is said to be minor and Vitamin D probably has influence of phosphate reabsorption.

Vitamin D itself undergoes a chemical change before it becomes a highly potent, chemically active form. Vitamin D is metabolized. It forms 25 Hydroxy Vitamin D₃ which is said to be two to five times more active than Vitamin D in the treatment of rickets—vitamins prevention. DeLuca states that Vitamin D undergoes chemical alteration to 25-OH-D₃ in the microsomes of the liver; the blood level of 25-OH-D₃ is said to be

virtually constant—and a feedback mechanism may control the 25 hydroxylation. By means studying tissues for Vitamin D, an even more potent form of Vitamin D than 25 hydroxy-Vitamin D was discovered. This most active form is called 1,25-Dihydroxy Vitamin D₃ (or 1,25-(OH)₂ D₃. 1,25-(OH)₂ D₃ is said to be ten times more active than Vitamin D with regards to rickets. The kidney seems to be the sole site of the change from 25-OH-D to 1,25-(OH)₂ D₃. 1,25-(OH)₂ D₃ is 1000 to 5000 times more active than Vitamin D, according to the author.

1,25-(OH)₂ D₃ is the chemical which produces the physiological effect in the bone and intestine—and to DeLuca this makes it a hormone—in view of the fact that it also seems to have a feedback phenomena. Calcium is the substance which raises or lowers the speed of synthesis of 1,25-(OH)₂ D₃. Calcium metabolism, in turn, is intertwined with the parathyroid glands, which also work in the feedback process; apparently parathormone is capable of stimulating the production of 1,25-(OH)₂ D₃ from 24,25-(OH)₂ D₃ when there is hypocalcemia. Experimental work has proved that intestinal absorption of calcium, in the presence of hypocalcemia, requires only 1,25-(OH)₂ D₃ but the mobilization of calcium from bone requires 1,25-(OH)₂ D₃ and parathormone. DeLuca states that in hypoparathyroidism, the patient cannot mobilize calcium from bone—thus patients with this disorder require 1.0 gr. of dietary calcium per day or lesser amounts of calcium plus parathormone.

It has been observed that an important factor in the healing of rickets is a rise in plasma phosphorus. It is thought that 1,25-(OH)₂ D₃ is the substance that stimulates the intestinal absorption of phosphorus, and it also releases phosphorus from other sites. If the plasma phosphate

level falls, the production of $1,25-(\text{OH})_2 \text{D}_3$ is stimulated — another feedback mechanism. It is of interest that $1,25-(\text{OH})_2 \text{D}_3$ suppresses the production of further $1,25-(\text{OH})_2 \text{D}_3$ — and may stimulate the production of $24,25-(\text{OH})_2 \text{D}_3$.

DeLuca reminds the reader that man can make adequate Vitamin D_3 by the irradiation of 7 dehydrocholesterol in the skin but due to clothes and buildup, man does not get enough ultra violet radiation and thus has to ingest Vitamin D.

From a therapeutic point of view $1,25-(\text{OH})_2 \text{D}_3$ is an important substance. It is of benefit in hypoparathyroidism. Two bone diseases occur in chronic kidney disease with failure: osteomalacia and osteitis fibrosa cystica from secondary hyperparathyroidism; both result from faulty formation of $1,25-(\text{OH})_2 \text{D}_3$. One μg of $1,25-$

$(\text{OH})_2 \text{D}_3$ intravenously at the end of each dialysis is said to prevent the bone disease often seen with chronic renal disease. Vitamin D dependency disease characterized by rickets in the presence of Vitamin D also responds to $1,25-(\text{OH})_2 \text{D}_3$. In contrast resistant rickets due to x-linked dominant hypophosphatemic Vitamin D resistant rickets cannot be treated satisfactorily with $1,25-(\text{OH})_2 \text{D}_3$, thus leading to the suggestion that its causation is a phosphate leak.

For an interesting complementary article, the reader is referred to a four-part article entitled "The Actions of Parathyroid Hormone On Bone: Relation to Bone Remodeling and Turnover, Calcium Homeostasis, and Metabolic Bone Diseases," in *Metabolism*, beginning July, 1976, by A. Michael Parfitt. This review is exhaustive and thorough.



MEDICINE IN THE



THE MONTH IN WASHINGTON

The Carter Administration has fired the first torpedo in its opening battle against escalating health care costs by asking Congress to approve a "permanent hospital cost containment system" that would cover all hospital operations, private as well as governmental.

Recommended in the revised budget prepared by the Administration is a limit of about 9 percent on increases in reimbursement for operating costs per admission for each hospital for the fiscal year that starts Oct. 1.

Other features of the plan "to contain the continued rapid and disturbing rise in the cost of health care" included:

- **waiver for states with acceptable hospital rate review programs.
- **separate controls on hospital outpatient departments, to encourage alternatives to inpatient care.

**federal programs to encourage additional cost containment activities such as second opinion before surgery, pre-admission review for non-emergency hospital care, etc.

**monitoring for federal compliance, primarily using data already reported by hospitals for other programs, such as Medicare and Medicaid. Hospitals found in violation of reimbursement ceilings in any year could "repay" excesses by reducing charges or reimbursement increases in future years. Civil and criminal penalties would be included to combat fraud and abuse.

Under the proposal, the Health, Education and Welfare Department Secretary would appoint a National Advisory Committee "of broad representation" to help determine future trends in spending for hospital care.

The program would be directed by the Health, Education and Welfare Department and would

begin with a directive from Congress to establish limits on annual rates of increase in hospital reimbursement from all payors, beginning in fiscal year 1978, after consultation with the health industry and the public. The program itself would be administered in large part by the hospitals and private third party payors, according to HEW.

The plan is to evolve a more permanent cost containment program later. This plan would remain in effect "until absorbed by reimbursement provisions of a comprehensive national health insurance plan."

Savings of such a program were estimated to be about \$1 billion the first year, rising to \$5.5 billion in 1981.

The cost containment plan, which hasn't been fully worked out yet, will be submitted to Congress shortly for legislative approval following meetings with such interested outside organizations as the American Hospital Association, the American Medical Association and Blue Cross, HEW Secretary Joseph Califano told reporters at the HEW budget briefing. Other organizations notified to meet with HEW included the Health Insurance Association of America and the Federation of American Hospitals.

Despite the sweeping scope of the proposal, covering private expenditures as well as those under federal programs, Califano denied the plan represented a return to the wage-price freeze system of several years ago. He insisted the new plan was a different animal.

Asked why physician fees were not covered, the HEW Secretary said his department is taking "one step at a time." Califano said "we will be looking at that to see what should be done." There has not been enough time to move in this area with a proposal that could work and that would be fair to the people involved, he said.

The hospital cap is no cinch to clear Congress which has been leery in recent years of wage-price freeze plans and which last year refused even to consider President Ford's recommendation for caps on Medicare reimbursement increases for physicians and hospitals. A key factor could be the position of organized labor which is vigorously opposed to federal wage-price restraints. In addition, health care lawmakers have been considering their own proposals to curb the

costs of Medicare-Medicaid including a prospective reimbursement plan for hospitals.

A ceiling on hospital cost increases is "an essential prerequisite to a future national health insurance program," said Califano. . . . "The cost containment program represents the first step in making national health insurance financially feasible."

Under the plan, no hospital could increase its overall level of charges by more than the negotiated and federally sanctioned ceiling.

Califano said that if hospitals raise charges without economic justification before the program goes into effect "it may be necessary for the legislation to have sufficiently retroactive impact to nullify the benefits of such improper conduct."

John Alexander McMahon, President of the American Hospital Association, immediately declared that any program that sets an arbitrary limit on one segment of the economy while ignoring the rest is "inequitable, unworkable and may well be counterproductive."

Asserting the flat opposition of the AHA to the proposal, McMahon said a cost containment plan must take into account wage and price increases beyond the control of hospitals as well as the individual circumstances of each institution.

Recent statistics show that food and fuel prices are rising faster than those of health care, according to the AHA President. "Hospital charges have gone up as a direct response to the public's need for access to quality health care," he said.

The Federation of American Hospitals called the plan "unrealistic and unfair," John A. Bradley, FAH President said, "The goal is laudable but legislation imposing controls on prices without controls on wages and supplies is unrealistic and unfair. The proposal is a retread of President Nixon's Phase IV control program and it is inconsistent with President Carter's policy against wage-price controls as well as his desire to reduce the growth of government."

Bradley said an arbitrary cap on reimbursement "would be a government directive to hospitals to sacrifice the quality of care."

He added: "It is disappointing that government has not addressed the causes of hospital inflation, particularly the malpractice problem. Under an arbitrary cap, a hospital could find itself in the ludicrous position of having to restrict the number of tests a physician may order."

* * * *

The Carter Administration has announced plans to write off the military medical school as a \$50 million mistake.

Defense Secretary Harold Brown said: "The University of Health Science is to be closed, its current students placed elsewhere in scholarship programs and its facilities put to other use. Physician needs of the military services can be satisfied more economically over the long run by direct recruitment. The 1978 budget can be reduced by \$14 million."

The surprise decision came as the military medical school was midway through its first year of operation with 32 students and construction of a building was well along on the grounds of the Bethesda Naval Medical Center near Washington, D. C.

The school has been opposed by the American Medical Association since Congress considered the proposal in 1972. In the interim it also has come under severe attack from various study commissions and lawmakers as an inordinately expensive method of producing relatively few physicians for the armed services.

Congress may move to reverse the Administration's decision although the prime mover for the school — former Rep. F. Edward Hebert (D-La.), Chairman of the House Armed Services Committee — is no longer in Congress. There is strong backing for the school on both committees, but it has not been tested to date by a forceful presidential move to kill the facility.

The defense announcement was part of a series of policy proposals contained in President Carter's revised budget for fiscal 1978.

* * * *

The dilemma facing the Carter Administration on national health insurance was bluntly stated by the Congressional Budget Office in its annual report. A plan fully financed by taxes, as Labor proposes, would use most of the money available for new programs "and would most likely require compensating reductions in other federal programs or tax increases above current policy levels." The budget office, which helps guide and determine Congress' spending and legislative plans, put the 1982 cost of such an NHI plan at a minimum of \$108 billion.

Alice Rivlin, Director of the Budget Office which functions in relation to Congress much as the Office of Management and Budget functions

in relation to the Executive branch, said a strong economy could leave room for new federal programs adding up to an additional \$50 billion of spending a year over the next several years. However, a wholly tax-financed NHI plan would swallow this and more, if no cost-sharing devices were featured such a plan — as urged by organized Labor — "could add from \$168 billion to \$200 billion to federal health expenditure by fiscal year 1982," said the Budget Office report. In contrast, the report continued, "a compulsory employment-based, premium-financed plan with cost-sharing (such as the AMA proposal) might increase federal spending by as little as \$15 to \$20 billion in 1982."

* * * *

President Carter has nominated a Vietnam war veteran, Max Cleland, 34, to head the Veterans Administration. Cleland lost two legs and an arm from a grenade explosion in battle. In 1971 he became the youngest member of the Georgia Legislature.

The appointment was seen as a victory for the younger Vietnam veterans groups who have urged one of their own be appointed. Cleland ran unsuccessfully for Lieutenant Governor of Georgia in 1974 and then joined the staff of the U. S. Senate Veterans Affairs Committee.

* * * *

The government is moving on two fronts to encourage the use of physician extenders (PE's) in rural areas.

The Social Security Administration has launched an experimental program to reimburse physicians for "independent" medical services provided Medicare beneficiaries by physician extenders. Previous policy had been to reimburse physicians for PE Medicare Part B services only those "incident to" to physician's services and performed under the direct supervision of the physician. The new policy will permit payment for the independent services of physician's assistants, nurse practitioners, medex and similar non-physician health care providers. The reimbursement will be made only to a physician extender's employer, not to the PE directly.

The new Social Security policy was announced shortly before Congress opened hearings on legislation with strong backing in House and Senate to require Medicare reimbursement for qualified PE programs in rural areas without the re-

striction of direct physician supervision. Although the four major bills up for consideration do not call for direct payment to PE's, they differ in reimbursement policies with some allowing reimbursement to rural clinics and other requiring that reimbursement be channeled only through the responsible physician.

Knotty medical ethical and policy questions will be aired at the hearings by the House Ways and Means Subcommittee on Health, with the issue of professional liability heading the list. On an even broader front, the lawmakers must consider limitations on what services can be provided by the PE's without stepping into the province of physicians. The amount of supervision and responsibility resting on the physician for the services of PE's will be a key issue. The reimbursement procedure is involved in all of these questions.

Practices that wish to be considered for enrollment in the experiment, or wish to receive further information regarding the experiment, should call collect to the University of Southern California, Division of Research in Medical Education, (Social Security contractor at 213/221-2147 from 9:00 a.m. through 4:00 p.m., California time. All such queries must be made by May 1, 1977.

The government noted that there are more than 7,000 formally trained PE's. "Whether this manpower resource continues to grow, or even continues to exist, depends in part upon federal reimbursement policies. The effect of such policy can only be magnified by the introduction of national health insurance."

* * * *

The State and Justice Departments, heeding the plight of hard-pressed hospitals, have agreed to a one-year waiver of new restrictions on admissions of "exchange visitor" foreign medical graduates. The waiver was requested by the HEW Department. Congress has signalled its agreement with the relaxation of requirements in the health manpower bill approved last year.

Hospitals had complained that the new restrictions, if implemented, would have slashed staffs of hospitals dependent on FMGs. The

law's requirement that residence in this country is limited to two years with a third year on approval was not waived. Since more than half of FMG residents are on immigrant status rather than exchange visitors, hospitals fear FMG staffs will be depleted anyway.

The American Hospital Association, the American Medical Association and many other medical groups had argued against the law's clamps on FMGs, contending that hardships would result and that the increasing supply of domestic physicians over time would end hospital reliance on FMGs.

Sen. Edward Kennedy (D.-Mass.), who was instrumental in securing passage for the controversial restrictions on FMGs, and Rep. Paul Rogers (D.-Fla.), Chairman of the House Commerce Health Subcommittee, have written a joint letter to the State and Justice Departments urging the government next year to submit a plan for eventual phasing-out of "ill-trained" foreign physicians.

* * * *

ALDRSGATE MEDICAL CAMP

Aldersgate Medical Camps will expand this year to include a fourth week for children with Spina Bifida. Dates for the camps this year are:

Diabetic Camp, June 13-18; General Medical Camp, June 20-25; Orthopedic Camp, July 11-16, and Spina Bifida Camp, July 17-22.

Families who can pay the full \$75 per week cost. Contributions are needed to help some of the campers. Contributions are also being solicited for an infirmary building at the camp to provide a year-round permanent facility at the camp. Tax deductible contributions may be made in any amount, and should be directed to Aldersgate Medical Camps, 2000 Aldersgate Road, Little Rock, Arkansas 72205.

Any patient recommended by a Society member will be accepted for camp so long as space is available.

For any additional information regarding this camp and its program, contact Dr. Kelsy J. Caplinger, Chairman, Aldersgate Medical Camps, 2000 Aldersgate Road, Little Rock, Arkansas 72205 or telephone 225-1444.



THINGS TO COME

CONTINUING MEDICAL EDUCATION FOR PHYSICIANS

All programs for the Continuing Medical Education Programs are held at the University of Arkansas unless otherwise noted.

MAY 20-21 — "Clinical Anesthesia," Dr. Richard Clark, Program Director.

JUNE 3-4 — "Basic Principles of ASIF Fixation," Dr. Carl Nelson, Program Director.

No Date — "Clinic Obstetrics and Fetal Maternal Medicine," Dr. David Barclay, Program Director.

AUGUST 4-6 — "Sports Medicine Seminar," Dr. Carl Nelson, Program Director.

BY ARRANGEMENT:

"Radiologic Special Procedures," Dr. Phillip Smith, Program Director.

"Esophageal Manometry," Dr. Clinton Texter, Program Director.

"Upper Gastrointestinal Endoscopy," Dr. Clinton Texter, Program Director.

"Comprehensive Review of Pediatrics," Dr. Whit Hall, Program Director.

Courses by arrangement are designed to be in-house mini-residencies for the practicing physician. Each course is developed on an individual basis, determined by the participant's educational needs and interest, and by the length of time a physician can be away from his practice for such in-depth study. Mini-residencies in other specialties can be arranged by writing the Office of Continuing Education, University of Arkansas College of Medicine, 4301 West Markham, Little Rock, Arkansas 72201, or their toll free number 1-800-482-9612.

THREE-DAY SYMPOSIUM

Children's Hospital National Medical Center and George Washington University are sponsoring a three-day Symposium on Common Pediatric Problems June 8-10, 1977. This symposium will focus on hematology, oncology and immunology, adolescence and a day of workshops.

This program has been approved for credit by

the American Medical Association and the American Academy of Family Physicians. Further information may be obtained by writing to Mrs. Susan Weiss, 13407 Brackley Terrace, Silver Springs, Maryland 20904.

EMERGENCY HEALTH SERVICE CONFERENCE

June 16-18, 1977, the Ninth Annual Emergency Health Services Conference will be held at the Arlington Hotel in Hot Springs, Arkansas. The conference is presented by the Arkansas Trauma Research Society, Arkansas Bureau of Emergency Health Services, the American College of Surgeons, and the Arkansas Committee on Trauma.

Of primary interest will be the program on "Care of the Critically Injured." The first general assembly will be on the 17th and the interest group meetings are scheduled for the afternoon of the 17th and morning of the 18th. The four sections are: physicians, nurses, administrators and supervisors, and emergency medical technicians. A second general assembly will conclude the conference on Saturday afternoon. The conference is accredited by the American Academy of Family Physicians.

For further information contact Bob Ford, Executive Vice President, Arkansas Trauma Research Society, 550 Prospect Building, Little Rock, Arkansas 72207. Telephone 1-501-661-1545.

WORKSHOP ON AGING, JUNE 18TH

The Department of Psychiatry and Behavioral Sciences and the Office of Continuing Education for Physicians at the University of Arkansas for Medical Sciences will co-sponsor a nationally developed workshop on Aging June 18, 1977, at the Arkansas Mental Health Services Auditorium. (ASH)

Leon Epstein, M.D., Ph.D., Professor and Vice-Chairman of the Department of Psychiatry at the University of California at San Francisco, will be the guest moderator.

The workshop has been approved for eight hours in Category I by the AMA. Eight hours of AAFP prescribed credit has also been requested by the Office of Continuing Education for Physicians.

For further information, contact: Robert R. Matthews, M.D., Director of Continuing Education in Psychiatry, University of Arkansas College of Medicine, Slot 568, 4301 West Markham, Little Rock, Arkansas 72201, or call 1-501-661-5903.

**THE ARKANSAS ACADEMY OF
FAMILY PHYSICIANS
30TH ANNUAL SCIENTIFIC ASSEMBLY
July 19-21, 1977**

Little Rock Convention Center

Tuesday, July 19, 1977

- 12 noon — Board of Directors Luncheon and Meeting, Camelot Inn.
6:30 p.m. — Cocktail Party. Host: Blue Cross-Blue Shield, Camelot Inn.

Wednesday, July 20, 1977

- 8:00 a.m. — "Use, Abuse, and Therapeutic Indications for Estrogens," Kermit Krantz, M.D., University of Kansas Medical Center, Kansas City, Kansas.
9:30 a.m. — Visit Exhibits.
10:00 a.m. — "Basic EKG's," Peter Carl Block, M.D., Harvard Medical School, Massachusetts General Hospital, Boston, Massachusetts.
12 noon — Business Luncheon, Convention Center Exhibit Area.
1:00 p.m. — Visit Exhibits.
1:30 p.m. — "Advanced EKG's," Peter Carl Block, M.D.
3:30 p.m. — Visit Exhibits.
3:45 p.m. — "Management of Acute Poisoning and Overdose," Barry H. Rumach, M.D., Rocky Mountain Poison Center, Denver, Colorado.
7:00 p.m. — Cocktail Party. Courtesy, Marion Laboratories, Camelot Inn.

Thursday, July 21, 1977

- 7:00 a.m. — Razorback Breakfast. Courtesy, Pfizer Laboratories. Guest Speaker: Coach Eddie Sutton, Head Basketball Coach and Assistant Athletic Director, University of Arkansas.
8:00 a.m. — "Hypertension — Current Concepts of Therapy," Barry J. Materson, M.D., University of Miami, Miami, Florida.
9:30 a.m. — Visit Exhibits.
10:00 a.m. — "Newer Techniques in Monitoring Critically Ill Patients" and "Newer Concepts in the Management of Shock," Robert J. Baker, M.D., The Abraham Lincoln School of Medicine, Chicago, Illinois.
12 noon — Installation of Officers' Luncheon, Convention Center Exhibit Area. Leslie B.

Huffman, M.D., President of the American Academy of Family Physicians, Presiding Officer.

1:15 p.m. — Visit Exhibits.

1:30 p.m. — "Fluid and Electrolyte Management in Critically Ill Patients" and "Blood Transfusional Therapy; Transfusion Reaction," Robert J. Baker, M.D.

3:30 p.m. — "Family Physician — Ideal Sex Therapist," Domeena C. Renshaw, M.D., Loyola University Stritch School of Medicine, Maywood, Illinois.

For further information contact Mrs. Alta Jean Good, Executive Secretary, Arkansas Academy of Family Physicians, Post Office Box 5721, Brady Station, Little Rock, Arkansas 72205. Registration fee: \$15.00 for members, \$25.00 non-members.



DOCTORS' DAY OBSERVED

The Woman's Auxiliary of the Washington County Medical Society observed "Doctors' Day" March 25th by presenting each physician with a carnation and an informal pot-luck dinner hosted by Dr. and Mrs. Mitchell Singleton, Fayetteville. Mrs. Singleton was the general chairman for the day's observances.

The Yell County Hospital recently observed Doctors' Day by honoring its staff physicians with a special breakfast, flowers, and colorful posters. Physicians honored were Drs. W. A. Coger, Gerald A. Stolz, W. P. Harris, Damon G. H. Martin, L. J. Bull, J. O. Pennington, and R. P. Edmondson.

The Sebastian County Medical Society honored county physicians with a dinner dance in observance of Doctors' Day. The Bonneville House was beautifully decorated for the gourmet dinner and dance on March 26th. Several physicians were recipients of door prizes. Mrs. Kenneth Wallace is president of the local Auxiliary and Mrs. Steve Wilson was chairman for the Doctors' Day observance.



PERSONAL AND NEWS ITEMS

COSTA RICA SERVICE

Dr. C. Stanley Applegate, Springdale general practitioner, left in early April for Costa Rica. Under sponsorship of the Presbyterian Church, he will be working with the medically needy in Costa Rica.

PEA RIDGE PHYSICIAN

Dr. Homer Russell of Great Bend, Kansas, will be moving to Pea Ridge in September for the practice of medicine on a part-time basis. He is a general surgeon with a specialty in adult medicine.

NEW PHYSICIANS FOR BATESVILLE

Two physicians will begin practice in Batesville on July 1. They are Drs. Paul John Baxley of North Little Rock, an internist, and J. R. Baker of Paragould, a general practitioner.

DR. CHEEK APPOINTED

Dr. Benjamin H. Cheek, general practitioner from Pine Bluff, was appointed medical director of the Jefferson Comprehensive Care Center in March. Dr. Cheek served on the staff of the infirmary at the Pine Bluff Arsenal for twenty years.

DR. AUSTIN RELOCATING

Dr. L. K. Austin, Little Rock Pediatrician, will relocate in Monticello in the near future.

BAXTER COUNTY OFFICERS

New officers for the Baxter County Medical Society include: Drs. James Y. Massey, Mountain Home ophthalmologist, President; Michael Hawkins, Mountain Home general surgeon, Vice President; Arthur L. Beard, Mountain Home general practitioner, Secretary-Treasurer; John F. Guenther, Mountain Home general practitioner, delegate, and A. Meryl Grasse, Calico Rock family practitioner, alternate delegate.

Dr. Max Cheney, Mountain Home internist, was elected society representative to the North Arkansas Chapter of the Arkansas affiliate of the American Diabetic Association.

BENTONVILLE HAS NEW PHYSICIAN

Dr. Neil D. Mullins has located in Bentonville for the general practice of medicine with Dr. W.

H. Howard, Jr. Dr. Mullins moved from Marlin, Texas, where he worked thirteen months. Prior to that time, he was in family practice for five years in Michigan.

DR. WILLIAMS SPEAKS

The new gamma camera at the DeQueen Hospital was described to the members of the DeQueen Lions Club recently by Dr. W. Curtis Williams. Dr. Williams, Radiologist, is the head of the Nuclear Medicine Department at the DeQueen Hospital. The new equipment was obtained with the assistance of a Weyerhaeuser Company Foundation Grant.

DR. HILL LOCATES

Dr. John M. Hill, Jr., has joined the White River Medical Center in Batesville. He is a pathologist. Prior to locating in Arkansas, he was Associate Pathologist at Parkview Hospital at Dyersburg, Tennessee.

DOCTORS TO WEST MEMPHIS

Dr. S. Morris Young and Dr. C. Herbert Taylor have joined the medical community in West Memphis. Dr. Young had practiced at Parkin and Dr. Taylor recently returned from Alaska.

DR. CAPLINGER CHAIRMAN

Dr. Kelsy J. Caplinger, Little Rock allergist, has been named Chairman of the Board of the Arkansas Chapter of the National Arthritis Foundation. Dr. Michael N. Harris, Little Rock internist, is vice president.

MEDICAL OFFICIALS SERVE AT OPEN HOUSE

Dr. Roger Bost, executive director of the Area Health Education Center Program, recently participated in an open house for the Family Practice Center in Pine Bluff. Dr. James A. Lindsey of Pine Bluff is director of the Center, and Dr. Don Miller is head of the AHEC Program in Pine Bluff.

DR. HYMAN APPOINTED TO BOARD

Dr. Carl E. Hyman, Pine Bluff obstetrician and gynecologist, has been appointed to the State Alcoholic Beverage Control Board by Governor Pryor. Dr. Hyman previously served on the State

Mental Retardation-Development Disabilities Board.

SEARCY MEDICAL CENTER CONTRIBUTES

The Searcy Medical Center recently made a \$1,000 contribution to the Sunshine School Fund raising campaign.

MENA HAS NEW PHYSICIAN

Dr. Robert H. Garrett, general practitioner from Eastland, Texas, has recently moved to Mena. He will be in general practice with surgery.

DR. DODGE SPEAKS TO PARENTS

Dr. Eva Dodge, director of the Arkansas State Family Planning Program, spoke to parents on "HOW TO HELP TEENAGERS THROUGH ADOLESCENCE" at the Amity School in March. Dr. Dodge also spoke to the teenagers on "How to Grow Up."

DR. TOLLESON TO BULL SHOALS

Dr. W. J. Tolleson, Mountain Home internist, has announced the opening of his office in the Bull Shoals Community Hospital. He specializes in Internal Medicine and Cardiology.

DIPLOMATES NAMED

A number of Arkansas physicians have been named diplomates of the American Board of Family Practice. They are: Dr. Charles D. Blackmon, Lake Village; Dr. Ted S. Lancaster, Walnut Ridge; Dr. Jack T. Patterson, Clarksville; Dr. Carie Dan Buckley, Jr., Fayetteville; Dr. Hugh A. Nutt, Fordyce; Dr. Robert L. Prosser, III, McGehee, and Dr. John R. Williams, Fort Smith.

DR. BEN SALTZMAN ADDRESSES HOMEMAKERS

Dr. Ben Saltzman, Director of Rural Medical Practice Development at the University of Arkansas Medical Center in Little Rock, addressed the Extension Homemakers Banquet in Marianna recently.

MARIANNA HOSTS MEDICAL STUDENTS

The Lee Memorial Hospital and Lee County Cooperative Clinic hosted a tour of Marianna by the junior and senior medical students from the University of Arkansas College of Medicine. The tours are part of the attempt to encourage medical students to remain in Arkansas after they have completed training.

DR. SIMPSON GUEST SPEAKER

Dr. P. B. Simpson, Pine Bluff neurosurgeon, was the guest speaker at the Medical Assistants of Jefferson County monthly meeting recently.

DR. DAVIS APPOINTED CHAIRMAN

Dr. James Davis, Mount Ida family practitioner, was recently appointed chairman of the newly organized Montgomery County Medical Finance Committee. The committee was organized to aid in procuring physicians and other medical assistance for the county.



BENTON COUNTY MEDICAL SOCIETY

The Benton County Medical Society has added four new members to its roll. They are:

DR. BARRY ALLEN, Pediatrician, whose office is located at 1014 West Poplar in Rogers. Dr. Allen was born in Missouri and attended the University of Arkansas where he received his B.A. degree in 1969. He then entered the University of Arkansas College of Medicine and was graduated with a M.D. degree in 1973. Upon graduation, he remained at the University of Arkansas for a pediatrics internship and residency training. Dr. Allen has been at Rogers approximately ten months.

DR. JAMES H. ARKINS is a general practitioner at 216 North Main in Bentonville. He was born in Little Rock and was graduated from the University of Arkansas School of Pharmacy with a B.S. degree in 1965. He attended the University of Arkansas College of Medicine and received his M.D. degree in 1975. Dr. Arkins completed his internship at John Peter Smith Hospital, Fort Worth, Texas, and began private practice in Bentonville in August 1976.

DR. LOUIS C. FLOYD is associated with the Concordia Medical Center in Bella Vista. He is a general practitioner with a special interest in Geriatrics. He is associated with Drs. Edward M. Cooper and Douglas C. Ronald.

Dr. Floyd was born in Texas and attended Texas Christian University, Fort Worth, Texas, and William Marsh Rice at Houston, where he received his B.S. degree in 1938. In 1942, he was graduated with a M.D. degree from the University of Texas Medical Branch, Galveston, Texas. He was in internship with the United States Public Health Services Hospital in Baltimore and residency training with the United States Public Health Services Hospital in Boston.

Dr. Floyd served with the United States Public Health Services in various hospitals throughout the United States from 1948 to 1969. He was in private practice in Yukon, Oklahoma, from 1969 to 1976 and then moved to Bella Vista. He is board certified by the American Board of Family Practice.

DR. MARION A. STEELE, Psychiatrist, has his office at Route 1, Gentry. He was born in Gentry and was graduated from the University of Arkansas College of Medicine in 1945. His internship was at Methodist Hospital, Peoria, Illinois, from 1945 to 1946.

Dr. Steele was in general practice in Newton County from 1949 to 1950, when he moved to Berkeley, California, to begin his residency training. He was in training at Herrick Memorial Hospital and then completed another year of residency at Mount Zion Hospital and Medical Center in San Francisco, California. After residency training, he was in private practice in psychiatry in both Oakland and San Francisco, California, from 1953 to 1975. From 1975 to 1976, he was with the Russellville Human Services as a staff psychiatrist.

DR. ROBERT R. WILLIAMSON is in general practice with Gravette Medical Associates in Gravette. He received his B.A. degree in Psychology at the University of Arkansas in Fayetteville in 1966, M.S. degree in Natural Sciences in 1970, and M.D. degree from the University of Arkansas College of Medicine in 1975.

Dr. Williamson was in the Family Practice Residency Program with the Area Health Edu-

cation Center in Fayetteville prior to moving to Gravette.

JOHN R. RUSSELL, M.D.

The Chicot County Medical Society has added to its membership roll Dr. John R. Russell. Dr. Russell is a general practitioner associated with Lake Village Clinic. He was born in St. Louis, Missouri, and attended the University of Arkansas College of Medicine where he received his M.D. degree in 1975. He interned at the University of Arkansas Medical Center prior to going to Lake Village in July 1976.

HARROL L. CRANFORD, M.D.

Dr. Harrol L. Cranford is a new member of the Cleburne County Medical Society. He is a native of Heber Springs.

Dr. Cranford received his B.S. degree from State College of Arkansas in Conway in 1969, and his M.D. degree from the University of Arkansas in 1974. His internship was at Baptist Memorial Hospital, Memphis, Tennessee. Upon completion of his internship, he returned to Heber Springs where he is in general practice, associated with Drs. McClanahan and Poff at 401 West Searcy.

THREE NEW MEMBERS FOR GREENE-CLAY

Greene-Clay County Medical Society has three new members. They are:

DR. J. DARRELL BONNER is in Family Practice with the Family Practice Clinic at 1015 West Kingshighway in Paragould.

Dr. Bonner is a native Arkansan and received his B.S. degree from the University of Arkansas in 1961, his B.A. degree in 1970 from State College of Arkansas in Conway, and his M.D. degree in 1975 from the University of Arkansas. His internship was at the University Hospital in Little Rock, Veterans Administration Hospital, and Baptist Hospital, all in Little Rock. From 1961 to 1965, Dr. Bonner was in the United States Navy.

DR. GEORGE A. HOBBY is in family practice with the Paragould Medical Group at #1 Medical Drive. He was born in Livingstone, North Rhodesia, Africa, and received his B.S. degree from Harding College, Searcy, in 1966. He was graduated from the University of Arkansas College of Medicine in 1970. Dr. Hobby served his internship at the Naval Hospital in

Portsmouth, Virginia, and was with the United States Navy as Flight Surgeon from 1972 to 1974. His residency was in family medicine from 1975 to 1976.

Dr. Hobby has been with the Paragould Medical Group since December 1976.

MISSISSIPPI COUNTY'S TWO NEW MEMBERS

The Mississippi County Medical Society has accepted into membership two new members. They are:

DR. MAX G. HAYNES, pediatrician who is associated with the Rainwater-Workman Clinic located at 527 North 6th in Blytheville. He was born in Blytheville and attended the Arkansas State University in Jonesboro where he received his B.S. degree in 1960. In 1964, he was graduated from the University of Arkansas College of Medicine and then was in internship at Detroit Receiving Hospital, Detroit, Michigan, for one year. Dr. Haynes was in residency training at the University of Arkansas Medical Center in Little Rock from 1967-1969 specializing in pediatrics and 1969-1971 specializing in hematology. Dr. Haynes served in the United States Air Force 1965-1967 and 1971-1975.

Dr. Haynes was Associate Clinic Professor at the University of Arizona Medical School from 1971 to 1973, Assistant Clinical Professor at Tulane Medical School from 1973 to 1975, and Assistant Professor at the University of Arkansas Medical Center from 1975 to 1976.

Dr. Haynes is board certified in pediatrics.

DR. MUNIR ZUFARI is a Vascular and Thoracic Surgeon who is also associated with the Rainwater-Workman Clinic in Blytheville.

Dr. Zufari was born in Syria and attended the University of Damascus in Syria where he received his M.D. degree in 1969. He was in internship at St. Anne's Hospital, Chicago, Illinois; had two years of residency training at State University of New York in Buffalo from 1971 to 1973; and completed two years at Burlington County Hospital in New Jersey 1973-1975. From 1975 to 1976, he had a fellowship with Baptist Hospital in Nashville.

Dr. Zufari was assistant instructor of Clinical Surgery at State University of New York at Buffalo.

DR. GORDON E. McCARTY, JR.

The Phillips County Medical Society has accepted Dr. Gordon E. McCarty, Jr., into membership. He is a native Arkansan and received his B.S. and B.A. degrees from the University of Arkansas. He was graduated from the University of Arkansas College of Medicine in 1975 and continued on there for his internship.

Dr. McCarty has served in the United States Air Force. He practiced in Paragould prior to establishing his office at 107 Hickory Hill Drive in Helena.

PULASKI COUNTY GAINS NINE

DR. SAMUEL B. CARUTHERS, JR., is a Radiologist with offices at 1100 Medical Towers in Little Rock.

Dr. Caruthers was born in Grenada, Mississippi, and attended Princeton University in Princeton, New Jersey, from 1955-1958. He received his M.D. degree from the University of Tennessee in Memphis in 1962. His internship was at Parkland Memorial in Dallas, Texas, from 1962 to 1963. From 1963 to 1966, he was in residency training at the University of Colorado Medical Center and Colorado General Hospital in Denver.

Dr. Caruthers is board certified by the American Board of Radiology. From 1968 to 1976, he was at the University of Colorado Medical Center, as Assistant Professor of Radiology and was named Associate Professor in 1976. He was associated with General Rose Memorial Hospital in Denver, Colorado, from 1970 to 1972.

DR. R. E. HARDBERGER practices ophthalmology and neuro-ophthalmology at 405 North University in Little Rock. A native of Texas, Dr. Hardberger attended the University of Oklahoma from 1959-1963 and received his M.D. degree from the University of Oklahoma Medical School in 1967. His internship was with the University of Oklahoma Medical Center. From 1971 to 1975, he was in residency at the University of Oklahoma, specializing in Ophthalmology. Dr. Hardberger had a fellowship at Jules Stein Eye Institute, University of California in Los Angeles, for one year in Neuro-Ophthalmology. He is board certified by the American Board of Ophthalmology and he is Assistant Clinical Professor of Ophthalmology at the University of Arkansas Medical Center pending.

DR. GARY E. HARPER is in family practice at Suite 818 of the Doctor's Building, 500 South University in Little Rock.

Dr. Harper was born in Redding, California, and attended the University of Arkansas in Little Rock from 1965-1970 where he received his B.S. degree. In 1974 he received his M.D. degree from the University of Arkansas College of Medicine and then was in internship and residency training at St. Vincent's Infirmary.

DR. SPENCER LEE JOHNSON is in Suite 711 of the Doctor's Building at 500 South University, Little Rock. He specializes in obstetrics and gynecology.

Dr. Johnson was born in Selmer, Tennessee, and attended Arkansas State University at Jonesboro where he received a B.S. degree in biology in 1969. In 1973, he received his M.D. degree from the University of Arkansas College of Medicine and continued on at the University Medical Center for his internship and residency training.

Dr. Johnson is board certified.

DR. RAYMOND E. KAEMMERLING is an Anesthesiologist with Doctor's Hospital in Little Rock and his office is located at 500 South University, Suite 720.

Dr. Kaemmerling received his B.S. degree in biology from Arlington State College in 1965 and his M.D. degree from the University of Texas Medical Branch in Galveston, Texas, in 1969. He interned at R. E. Thomason General Hospital in El Paso, Texas, and served residency training at the University of Texas Medical Branch in Anesthesiology from 1972 to 1975.

DR. ALBIN J. KRYGIER is the medical director of American Blood Components, Inc., 615 Main, Little Rock.

Dr. Krygier was born in Wisconsin and received his M.D. degree from Marquette Medical College of Wisconsin in Milwaukee in 1936. He interned at St. Joseph's Hospital in Milwaukee and served in residency at the Veterans Administration Center in Wood, Wisconsin, from 1947-1951.

Dr. Krygier has served as Assistant Clinical Instructor at the Medical College of Wisconsin since 1949 and he was in private practice in Milwaukee from 1951 to 1976.

DR. DONALD F. MEACHAM practices cardiology at the Baptist Medical Towers Building,

Suite 690, Little Rock. A native of Michigan, he received his B.A. degree from Kenyon College in Gambier, Ohio, in 1967. In 1972, he was graduated from the University of Arkansas College of Medicine. His internship was at the University of Arkansas Medical Center and he also served residencies at the Center. From 1973 to 1975 he specialized in Internal Medicine and from 1975 to 1977 he specialized in Cardiology. Dr. Meacham is an instructor at the University of Arkansas. He is board certified by the American Board of Internal Medicine.

DR. MARY L. RAGSDILL, Neurologist with the University of Arkansas College of Medicine in Little Rock, is a native Arkansan. She attended Hendrix College in Conway and received a B.A. degree in biology in 1968. She was graduated from the University of Arkansas College of Medicine in 1972. Her internship and residency training were also at the University of Arkansas. Dr. Ragsdill is an Assistant Professor of Neurology at the University of Arkansas College of Medicine.

DR. NANCY F. RECTOR, 890 Medical Towers Building, Little Rock, is a specialist in Pulmonary Disease. She received her B.S. degree from Harding College in 1964 and her M.D. degree from the University of Arkansas in 1968. She interned at Hillcrest Medical Center in Tulsa, Oklahoma, and then served in residency training at the University of Arkansas Medical Center in Internal Medicine from 1969-1972. Dr. Rector had a fellowship with the University of Arkansas Medical Center from 1972-1973 in pulmonary disease.

Dr. Rector is board certified both in Internal Medicine and Pulmonary Disease. She is assistant professor of Internal Medicine and Pulmonary Disease at the University of Arkansas College of Medicine.

DR. JAMES H. LANDERS was born in Tulsa, Oklahoma, and received his pre-medical education at the University of Oklahoma. In 1970, he was graduated from the University of Arkansas College of Medicine. After completing his internship at the University of Arkansas Medical Center, he was in residency there in Ophthalmology. At Barnes Hospital in St. Louis, Missouri, Dr. Landers was in Retinal Fellowship for one year.

Dr. Landers is instructor of Ophthalmology at the University of Arkansas and is in private practice with the Retinal Group, 519 Doctors Building, 500 South University, Little Rock.

SEBASTIAN COUNTY MEDICAL SOCIETY ADDS THREE MORE

The Sebastian County Medical Society has three additional members. They are:

DR. A. PAT CHAMBERS, who is a member of the staff of the Fort Smith Psychiatric Clinic in Fort Smith. Dr. Chambers is a native of Oklahoma and received his B.A. degree from the University of Oklahoma in 1966. In 1970, he received his M.D. degree from the Washington University School of Medicine in St. Louis, Missouri. He interned at the Babies and Children's Hospital, Cleveland, Ohio, and was then in residency at Barnes Hospital in St. Louis from 1973 to 1976 specializing in psychiatry.

Dr. Chambers is clinical professor of psychiatry at the University of Arkansas Medical Center in Little Rock and has been in association with the Fort Smith group since September 1976.

DR. STEPHEN C. GRAVES is an emergency room physician at St. Edward Mercy Medical Center in Fort Smith. He is a native Arkansan and received his B.A. degree from the University of Arkansas in Fayetteville in 1970. In 1974, he received his M.D. degree from the University of Arkansas College of Medicine and then interned at the Columbus Medical Center in Georgia.

Dr. Graves was house physician and emergency room physician at Cobb Memorial Hospital in Phenix City, Alabama, for six months prior to coming to Fort Smith.

DR. MERLE E. McCLAIN is a pediatrician associated with Dr. Ben Cabell, at 312 South 16th Street, Fort Smith.

Dr. McClain attended the University of Arkansas at Fayetteville and was graduated in 1969 with a B.S. degree in Chemistry. In 1973, he received his M.D. degree at the University of Arkansas College of Medicine. Dr. McClain completed internship and residency training at Children's Medical Center in Dallas, Texas.

DR. JEAN F. WISE

Dr. Jean F. Wise has been accepted as a member of the Union County Medical Society. He is an otolaryngologist and his office is located at 306 Thompson in El Dorado.

Dr. Wise was born in Jackson, Tennessee, and received his B.S. degree at California Baptist College in Riverside. In 1972, Dr. Wise was graduated from the University of California with a M.D. degree. He interned at Riverside County General Hospital and University Medical Center in California, and completed residency training at Wadsworth Hospital and Veterans Administration Center in Wadsworth, Kansas. He is board eligible.

DR. VERNON H. CARTER

Dr. Vernon H. Carter has been accepted into membership of the Washington County Medical Society. A native of Arkansas, he attended the University of Arkansas where he received his B.S. degree in chemistry and B.S. degree in medicine. In 1959, he was graduated from the University of Arkansas College of Medicine. Upon completion of his internship at St. Vincent's Infirmary in Little Rock, Dr. Carter was in residency training at the University of Alabama Medical Center in Birmingham.

Dr. Carter was a pilot in the United States Air Force. Prior to moving to Arkansas, he was in general practice in New Smyrna Beach, Florida, specializing in Dermatology. He was an Instructor of Dermatology at the University of Alabama Medical Center and is board certified. Dr. Carter practices Dermatology at 114 South College in Fayetteville.

DR. GARY W. RUSSELL

Dr. Gary W. Russell, family practitioner, has been accepted into membership of the Yell County Medical Society. He is associated with Drs. Gene D. Ring, James L. Maupin, and Jerome H. Luker, in the Dardanelle Clinic in Dardanelle.

Dr. Russell was born in Portland, Oregon, and received his M.D. degree from the University of Arkansas College of Medicine in 1975. He interned at the University of Arkansas Medical Center. Dr. Russell served in the United States Army Reserve from 1962 to 1970.

DR. JOHN F. TROTTER, JR.

Pulaski County Medical Society has extended membership to Dr. John F. Trotter, Jr., of 132 Pearl Street, Little Rock. He is an intern at the University of Arkansas Medical Center specializing in pediatrics. He is a graduate of the University of Arkansas College of Medicine.



O B I T U A R Y



D. L. OWENS, M.D.

At the age of 79, Dr. D. L. Owens of Harrison, died on March 11, 1977. He was born July 28, 1897, at Limestone Valley in Newton County and had lived in Boone County since 1922 when he began his medical practice in Harrison. Dr. Owens retired from active practice in 1967.

He graduated from the University of Tennessee Medical College in 1921 and served a year internship at Charity Hospital in Little Rock. On July 1, 1922, he began his private practice as general practitioner in Harrison.

Dr. Owens had served as Vice President of the Mid-South Medical Society. He was a member and secretary of the Arkansas State Medical Board of Examiners for eight years. He was a past president of the Boone County Medical Society. Dr. Owens had also served as a District Councilor of the Arkansas Medical Society and was a past Vice President of the State Society.

Dr. Owens is survived by his wife, Mrs. Glenna Jo Owens, and two daughters — Doris E. Johnston of Hot Springs and Laurel J. Burnett of Lubbock, Texas.

B. F. BANISTER, JR., M.D.

Dr. Benjamin Frederick Banister, Jr., of Conway, a retired family practitioner, died March 3,

1977. He was a graduate of the University of Arkansas College of Medicine and a veteran of World War II.

Dr. Banister was born at Guy, Arkansas, on December 26, 1922. He attended the Arkansas State Teachers College in Conway and was graduated in 1943. In 1946, he received his M.D. degree from the University of Arkansas College of Medicine and was a general practitioner in Conway from 1950 to 1968. He served in the United States Army from 1947-1949.

Dr. Banister is survived by his wife, Mrs. Ella Krepps Banister, and two daughters.

WILLIAM CARROLL DODD, SR., M.D.

Dr. William C. Dodd, age 67, retired Bald Knob physician, died March 3, 1977. He was born on July 19, 1909. Dr. Dodd was in private practice in Bald Knob for 30 years and had retired just recently.

He began his practice in 1946 after serving in World War II. He graduated from the University of Arkansas School of Medicine and did his residency at Jacksonville, Florida. He was a general practitioner.

Dr. Dodd is survived by his wife, Mrs. Ruth Harrison Dodd, two sons, Jimmy and William Dodd, Jr., both of Bald Knob; a daughter, Mrs. Carolyn Gipson of North Little Rock, and a brother, Dr. Perry L. Dodd of Augusta.



ANSWER — Electrocardiogram of the Month

Diagnosis: A. ECG machine malfunction — sticking paper roller.

B. Normal trace with different machine.

Strip B demonstrates complete pacemaker capture at a rate of 77.

Strip A — The pacemaker appears to be firing at irregular intervals and at a faster rate than is noted in Strip B. However, note that the width of the complexes and T waves varies without changing configuration of the complexes except for the last beat in the first strip which is a supraventricular conducted beat. This variation in rate and QRS width and abrupt drop of T wave back to base line suggests a problem with the ECG machine. The paper roller is having trouble feeding paper through and gives the irregularity and faster appearing rate.

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